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U. S. DEPARTMENT OF AGRICULTURE

Volume I

EXPLANATORY NOTES  
for  
DEPARTMENT OF AGRICULTURE  
Fiscal Year  
1960

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## PREFACE

### Project statements -

The obligations shown in the Project Statements are on the basis of the appropriations and activities proposed in the 1960 Budget Estimates. In some Project Statements the activities are further divided into subcategories, reflecting a more detailed description of the work conducted under the appropriation items.

It should be noted that amounts reflected as subcategories in the Project Statements are not always obtainable directly from accounting records formalized by specific account classifications. Wherever it has been necessary to distribute costs to activities for which total amounts are not directly available from the accounts, every effort has been made to base such charges as accurately as possible on the basis of available objective information such as periodic time reports, etc.

### Pay rate increase costs -

The budget estimates for 1960 include funds to cover the cost of salary increases pursuant to Public Law 85-462. Supplemental estimates are anticipated to meet part of the fiscal year 1959 cost of these pay increases; in the lead-off tabular statements, the "Base for 1960" entries include the amount of such supplementals. The project statements reflect the total pay act costs which have been distributed to the various projects for 1958, 1959, and 1960 as non-add figures in brackets. Amounts being requested for 1959 pay act supplementals are indicated prior to the "Total appropriation or estimate" entry in the project statements. Differences between total increased pay costs shown in brackets for 1959 and the 1959 pay act supplementals are being absorbed.

The following tabulation summarizes total pay rate increase costs applicable to the base for 1960:

	Estimated costs applicable to <u>1960 base</u>	Estimated absorptions	Anticipated pay act supplementals, <u>1959</u>
<u>Salary increases (applicable to appropriations):</u>			
Total, Department of			
Agriculture .....	\$36,815,082	\$9,854,134	\$26,960,948
Deduct Forest Service .....	<u>-6,892,473</u>	<u>-1,460,273</u>	<u>-5,432,200</u>
Total (excluding Forest Service) .....	<u>29,922,609</u>	<u>8,393,861</u>	<u>21,528,748</u>

### Postal rate increase costs -

In most cases, costs of the postal rate increases which became effective during fiscal year 1959 pursuant to Public Law 85-426 are being absorbed by the Agencies of the Department within available funds. In three agencies where annual mailing expenses are relatively large, however, supplemental estimates will be required in 1959 to meet increased postal costs. These proposed supplementals are also included in the "Base for 1960" entries and indicated prior to the "Total appropriation or estimate" entry, in project statements for the following items:

Anticipated 1959 supplementals due to postal rate increases

Agency and Appropriation Item

<u>Extension Service</u>	
Penalty mail .....	\$622,827
<u>Agricultural Marketing Service</u>	
Marketing Research and Service .....	481,000
<u>Office of Information</u>	
Salaries and Expenses .....	<u>18,000</u>
Total .....	1,121,827

An explanation of the need for these supplementals is included in the justification for each agency concerned.

Cost-type budgets -

P.L. 863, 84th Congress, approved August 1, 1956, provides that "The requests of the departments and establishments for appropriations shall, in such manner and at such time as may be determined by the President, be developed from cost-based budgets" (Sec. 216, Budget and Accounting Act of 1921, as amended). Pursuant to this legislation, it has been determined that cost-type budgets for the following seven agencies of the Department of Agriculture would be included in the 1960 Budget document:

Farmer Cooperative Service  
Commodity Exchange Authority  
Federal Crop Insurance Corporation  
Office of the General Counsel  
Office of the Secretary  
Office of Information  
Library

In the past, financial requirements for projects have been expressed in terms of "obligations" (goods and services ordered). Cost-type budgets are expressed in terms of "applied costs" (goods and services used, regardless of when ordered, delivered, or paid for).

In agencies with large procurement or construction programs, where long time lapses are experienced between obligations or deliveries and the resulting costs, differences between annual costs and obligations may be substantial, reflecting chiefly variations in end-of-the-year inventories or construction work in progress. For the seven agencies listed above, however, differences between costs and obligations are relatively minor, primarily reflecting fluctuations in the value of undelivered orders for equipment and supplies between the beginning and end of the past fiscal year. For this reason, and in the interest of providing a consistent basis for evaluating program needs for all appropriations, financial requirements for projects in the Explanatory Notes are expressed in terms of obligations. Where obligations and costs are not identical, the differences have been indicated in footnotes.

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## AGRICULTURAL RESEARCH SERVICE

### Purpose Statement

The Agricultural Research Service was established by the Secretary of Agriculture on November 2, 1953, under the authority of Sec. 161, Revised Statutes (5 U.S.C. 22), Reorganization Plan No. 2 of 1953 and other authorities. It conducts production, utilization, and home economics research and the closely associated inspection, disease and pest control and eradication work. The Administrator of this Service is also responsible for the coordination of all research of the Department.

The program of the Agricultural Research Service is organized under three areas of activity as follows:

1. Research is conducted under three major categories: (a) farm research (research on crops and livestock, and farm and land management research); (b) utilization research and development research; and (c) home economics research.
2. Regulatory activities are conducted under three major categories: (a) plant disease and pest control; (b) animal disease and pest control; and (c) meat inspection.
3. The Service administers the Federal-grant funds for research at the State agricultural experiment stations and operates experiment stations in Puerto Rico, Virgin Islands, and Alaska.

The Agricultural Research Service carries out emergency programs, when necessary, for the control and eradication of animal diseases, such as foot-and-mouth disease, and for the control of emergency outbreaks of insects and diseases.

The Agricultural Research Service also directs research beneficial to the United States which can be advantageously conducted in foreign countries through grants and contracts with foreign research institutions and universities, by using foreign currencies available under Sections 104(a) and 104(k) of Public Law 480, the Agricultural Trade Development and Assistance Act of 1954, as amended.

A full discussion of the research activities conducted under Public Law 480 is included in these Explanatory Notes for ARS in the section entitled "Use of Foreign Currencies for Conduct of Research Abroad under Sections 104(a) and (k) of Title I of Public Law 480."

The Agricultural Research Service maintains a central office in Washington, D. C., and operates the 12,000-acre Agricultural Research Center at Beltsville, Maryland. However, most of the work is conducted at approximately 450 other locations in the United States, Territories and Possessions and several locations in foreign countries. Much of the work is conducted in cooperation with the State agricultural experiment stations and with other agencies, both public and private. On November 30, 1958, there were 16,028 full-time employees, of which 3,302 were in the Washington metropolitan area and 12,726 were located at other points in the United States, Territories and Possessions, and foreign countries.

	<u>Estimated Available, 1959</u>	<u>Budget Estimate, 1960</u>
Appropriations:		
Salaries and expenses:		
Research	\$63,119,000	\$64,240,000
Plant and animal disease and pest control	53,055,000	49,110,000
Meat inspection	20,975,000	21,475,000
Total	<u>137,149,000</u>	<u>134,825,000</u>
State experiment stations:		
Payments to States, Hawaii, and Puerto Rico	31,553,708	31,553,708
Penalty Mail	250,000	250,000
Total	<u>31,803,708</u>	<u>31,803,708</u>
 Total	 <u>168,952,708</u>	 <u>166,628,708</u>

Summary of Appropriations, 1959, and Estimates, 1960

Appropriation Item	: Estimated : Available, : 1959	: Budget : Estimates, : 1960	: Increase (+) : or : Decrease (-)
Salaries and expenses:	:	:	:
Research .....	: \$63,119,000:	\$64,240,000:	+\$1,121,000
Plant and animal disease and pest control .....	: 53,055,000:	49,110,000:	-3,945,000
Meat inspection .....	: 20,975,000:	21,475,000:	+500,000
Total, Salaries and expenses ...	: 137,149,000:	134,825,000:	-2,324,000
State Experiment Stations:	:	:	:
Payments to States, Hawaii, and Puerto Rico .....	: 31,553,708:	31,553,708:	- -
Penalty mail .....	: 250,000:	250,000:	- -
Total, State Experiment Stations	: 31,803,708:	31,803,708:	- -
Diseases of animals and poultry ....	: a/	: - -	: - -
Alterations and improvements, animal quarantine station, Clifton, N. J. (permanent) .....	: 30,000:	: - -	: -30,000
Total .....	: 168,982,708:	166,628,708:	-2,354,000
Deduct permanent appropriation .....	: 30,000:	: - -	: -30,000
Total (excluding permanent appro- priation) .....	: 168,952,708:	166,628,708:	-2,324,000

a/ Authority to make transfers of not to exceed \$1,000,000 from other funds available to the Department to finance the eradication of vesicular exanthema in swine was provided in 1959.





(a) Salaries and Expenses

	<u>Research</u>	<u>Plant and Animal Disease and Pest Control</u>	<u>Meat Inspection</u>	<u>Total</u>
Appropriation Act, 1959	\$59,044,890	\$47,132,000	\$17,326,000	\$123,502,890
Supplemental Appropria- tion Act, 1959 .....	- -	3,500,000	1,750,000	5,250,000
Proposed supplemental, 1959, for pay act costs .....	4,074,110	2,423,000	1,899,000	8,396,110
Base for 1960 .....	63,119,000	53,055,000	20,975,000	137,149,000
Budget Estimate, 1960 .	64,240,000	49,110,000	21,475,000	134,825,000
Increase or Decrease ..	<u>+1,121,000</u>	<u>-3,945,000</u>	<u>+500,000</u>	<u>-2,324,000</u>

SUMMARY OF INCREASES AND DECREASES, 1960

Research:

For research on humane slaughter methods .....	+250,000
For construction and improvement of physical facilities at the National Arboretum .....	+200,000
To construct laboratory facilities for crops research at Logan, Utah .....	+600,000
To provide for transfer from the Department of the Army of laboratory facilities for entomology research at Orlando, Florida .....	+71,000
Increase for research .....	<u>+1,121,000</u>

Plant and Animal Disease and Pest Control:

For cooperation with the States in suppressing and preventing further spread of the soybean cyst nematode .....	+480,000
To continue the program for the eradication and prevention of spread of vesicular exanthema of swine previously financed by advances from Commodity Credit Corporation .....	+600,000
Decrease in brucellosis program made possible by progress in eradication and increased State participation .....	-5,000,000
Decrease due to providing in the direct appropriation to General Services Administration for certain leasing costs now paid from this appropriation .....	-25,000
Net decrease, Plant and animal disease and pest control ..	<u>-3,945,000</u>

Meat Inspection:

To strengthen the Federal meat inspection service .....	<u>+500,000</u>
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Total net decrease, Salaries and Expenses .....	<u>-2,324,000</u>
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PROJECT STATEMENT

Project	1958	1959 (estimated)	Increase or Decrease	1960 (estimated)
1. Research:				
a. Farm research:				
(1) Animal husbandry .....	\$5,026,750	\$5,243,000	+\$250,000(1)	\$5,493,000
(2) Animal disease and parasite .....	6,777,530	6,856,000	- -	6,856,000
(3) Crops .....	12,862,800	13,819,000	+800,000(2)	14,619,000
(4) Entomology .....	5,249,106	5,641,000	+71,000(3)	5,712,000
(5) Soil and water conservation .....	8,253,656	6,975,000	- -	6,975,000
(6) Farm economics .....	2,668,478	2,967,000	- -	2,967,000
(7) Agricultural engineering	2,160,014	2,284,000	- -	2,284,000
Total, farm research .....	a/42,998,334	43,785,000	+1,121,000	44,906,000
b. Utilization research and development:				
(1) Cereal and forage crops .	2,506,990	3,125,700	- -	3,125,700
(2) Cotton and other fibers .	2,780,345	3,300,800	- -	3,300,800
(3) Fruits and vegetables ...	2,203,321	2,570,300	- -	2,570,300
(4) Oilseeds .....	1,506,680	1,939,200	- -	1,939,200
(5) New and special plants ..	1,481,974	1,711,800	- -	1,711,800
(6) Poultry, dairy and animal products .....	2,791,221	3,419,200	- -	3,419,200
Total, utilization re- search and development ..	13,270,531	16,067,000	- -	16,067,000
c. Home economics research:				
(1) Human nutrition .....	1,046,642	1,077,000	- -	1,077,000
(2) Household economics .....	600,526	652,000	- -	652,000
(3) Clothing and housing ....	414,389	435,000	- -	435,000
Total, home economics research .....	2,061,557	2,164,000	- -	2,164,000
d. Administration of payments to States, and research in Alaska, Puerto Rico and Virgin Islands:				
(1) State experiment stations	252,141	351,000	- -	351,000
(2) Research in Alaska, Puerto Rico and Virgin Islands .....	710,118	752,000	- -	752,000
Total, administration of payments to States, and research in Alaska, Puerto Rico and Virgin Islands .....	962,259	1,103,000	- -	1,103,000
Total, Research .....	a/59,292,681	63,119,000	+1,121,000	64,240,000

(Continued on next page)

Project	1958	1959 (estimated)	Increase or Decrease	1960 (estimated)
2. <u>Plant and Animal Disease and Pest Control:</u>				
a. <u>Plant disease and pest control:</u>				
(1) Plant pest control .....	12,625,767	18,366,900	+473,000(4)	18,839,900
(2) Plant quarantine .....	4,848,729	5,439,500	- -	5,439,500
Total, plant disease and pest control .....	17,474,496	23,806,400	+473,000	24,279,400
b. <u>Animal disease and pest control:</u>				
(1) Animal disease control and eradication .....	29,334,362	28,696,700	-5,495,000	23,201,700
Deduct transfer from CCC for eradication of:				
Brucellosis .....	17,865,254	- -	- -	- -
Vesicular exanthema ...	1,258,044	1,077,000	+1,077,000	- -
Total, animal disease control and eradication (appropriated funds) ...	10,211,064	27,619,700	-4,418,000(5)	23,201,700
(2) Animal quarantine .....	1,577,939	1,628,900	- -	1,628,900
Total, animal disease and pest control .....	11,789,003	29,248,600	-4,418,000	24,830,600
Total, Plant and Animal Disease and Pest Control .....	29,263,499	53,055,000	-3,945,000	49,110,000
3. Meat Inspection .....	18,065,791	20,975,000	+500,000(6)	21,475,000
Unobligated balance .....	748,319	- -	- -	- -
Total pay act costs (P.L. 85-462) .....	b/[3,638,591]	b/[8,896,110]	[+140,000]	[9,036,110]
Total available or estimate ...	107,370,290	c/137,149,000	-2,324,000	134,825,000
Transferred from:				
State Experiment Stations, Agricultural Research Service	-12,397	- -		
Conservation reserve, soil bank programs, Agriculture ..	-2,648,753	- -		
Proposed supplemental due to pay increases .....	- -	-8,396,110		
Total appropriation or estimate	104,709,140	128,752,890		



- a/ Includes \$346,000 reappropriated for use in fiscal year 1959 to complete construction of research facilities authorized in fiscal year 1958.
- b/ Excludes pay act costs relative to the vesicular exanthema program of \$46,316 in fiscal year 1958 and \$77,000 in fiscal year 1959.
- c/ Includes \$527,557 obligated in 1958 under the advance procurement authorization (P.L. 85-386).

## INCREASES AND DECREASES

### Research

- (1) An increase of \$250,000 under the farm research activity, "Animal husbandry", to conduct research on humane methods to be used in the slaughter of livestock.

Need for Increase: In recent years there has been widespread interest in the use of humane methods of slaughter of livestock and poultry. This interest resulted in the passage of P. L. 85-765, approved August 27, 1958, which provides for research on such methods of slaughter of livestock under section 4. This Act further requires that after June 30, 1960 the Federal Government in its procurement and price support programs and operations must procure livestock products only from slaughterers or processors who in all of their plants use methods designated as humane by this Department, except in emergencies. It is essential that research be undertaken to develop humane slaughter methods and to evaluate present methods in use.

A number of improvements in slaughter methods have been advocated by various persons and organizations. These need to be evaluated from the standpoint of humaneness and practicality. Research is urgently needed on suitable methods for instantaneously rendering meat animals unconscious prior to slaughter without harmful effect to the animal product for human consumption or other uses. There is no easy guide as to what is humane for animals. It is difficult to analyze and compare the degree of pain induced by various slaughter methods. Some experiments have shown that some animals appearing to be unconscious may be merely paralyzed and still conscious of pain.

A large part of the income of farmers and ranchers derives from livestock, dairy, and poultry products. The industries that handle these products are important elements of our economy. It is essential that regulation of these industries by Government be designed to promote the general welfare in all its aspects. Therefore, it is necessary when providing for humane methods of handling and slaughtering animals, that consideration be given at the same time to facilitating the efficient, orderly, and rapid conversion of farm animals into wholesome meat and meat food products.

Only limited studies have been made of methods of slaughtering meat animals. In this country, for the most part, they have been conducted chiefly by packers and dealers in packing house equipment. The objective of most of them has been economy of operations and safety for employees. A procedure using carbon dioxide for hogs prior to shackling and sticking has been developed and is being used on a small scale in this country. However, care must be exercised in use of this gas to avoid underexposure which would not produce unconsciousness or overexposure which would asphyxiate animals or poultry thereby rendering them unfit for food.

Studies have been made of electrical stunning, but this method has caused hemorrhages and gives meat an undesirable appearance. In hogs, particularly, there have been lung lesions similar to those caused by disease which have delayed determination of the wholesomeness of meat. In the development of an electrical stunning method it would be necessary to adapt it to high speed, mass production slaughter, and to find ways of avoiding danger to workers. Although some European countries have adopted electrical methods, many problems have been encountered. If electrical conditions are not correct in all respects animals are paralyzed and not stunned. In Denmark where quality of meat is important because of its export trade, the hemorrhagic conditions encountered have caused that country to discontinue extensive use of this method.

P. L. 85-765 also authorizes the Secretary of Agriculture to establish a committee of 12 members to make recommendations relative to (a) humane methods of slaughter, (b) obtaining the cooperation of all groups and agencies concerned in the furtherance of such research and the adoption of approved methods, and (c) the designations required by the Act. The Committee is directed to meet at least once each year, and in addition, at the call of the Secretary. While the committee members, other than the chairman who is a Federal employee, are not entitled to compensation, they are to be provided their travel and subsistence expenses in connection with their attendance at meetings. This Committee was constituted late in the calendar year 1958. It has met and recommended a research program to meet the immediate needs. Subsequently, recommendations will be made on the long range program.

Plan of Work: It is proposed to conduct basic physiopathological research on neural response in animals, to investigate mechanical, electrical, chemical, manual, and other methods of slaughter, and to study the physiological processes induced by handling prior to immobilization. Since slaughter methods may affect the condition and quality of meat it would be essential to conduct studies on post mortem changes in meat under various slaughter methods. Research would be conducted on the effect of slaughter procedures and methods on dressing techniques, preservation of meat, and other packinghouse processes.

The advisory Committee established by the Secretary will continue to hold periodic meetings and to make further recommendations relative to carrying out the provisions of P. L. 85-765.

(2) Increase of \$800,000 under the farm research activity, "Crop research", consisting of:

(a) An increase of \$200,000 for construction and improvement of physical facilities at the National Arboretum.

Need for Increase: Additional physical facilities at the National Arboretum are required in order to permit functioning of its research program and to permit the general public, especially those interested in landscape gardenings, to view and study in natural setting the many types of plants which have been assembled. The proposed additional facilities at the National Arboretum are in accord with long range plans previously approved by the Department and the Congress.



The principal items which will have been completed by the end of fiscal 1959 include fencing, the road system and most of the parking areas, a gatehouse, the service buildings, two comfort stations, two public shelters, and a part of the greenhouse installation. The following items proposed to be undertaken in 1960 have been planned and are still needed before the Arboretum can fully function: additional greenhouses, residences for greenhouse propagator and head guard, entrance gates at three locations, additional public access trails, extension of flood walls for the tidal portion of Hickey Creek, grading, etc.

Greenhouses are necessary for the propagation and growing of young stocks, the care of valuable plant gifts, and for research in propagation, plant breeding, and such other physiological and cultural investigations as require the controlled environment which a greenhouse affords. Residences are needed for the head guard and greenhouse propagator to provide local supervision whenever the Arboretum is open to the public and for the continuous protection of facilities and growing plants. Appropriate gateways are needed for the protection of property and control of visitors.

Plan of Work: The accompanying tabulation shows the cost to date for the development of the National Arboretum and the development program planned for fiscal year 1960. As shown by this table, the estimated cost of the facilities proposed to be provided in fiscal year 1960, is \$434,250, an increase of \$200,000 over the amount available for such purpose in fiscal year 1959. It is proposed to use such funds in fiscal year 1960 as follows:

	<u>Estimated Cost</u>
Completion of greenhouses .....	\$125,000
By the end of fiscal year 1959, the greenhouse facilities will include a single story headhouse and 2 greenhouses. In fiscal year 1960, it is proposed to add 4 greenhouses and a connecting 14' corridor to the headhouse. The new greenhouses would each be 100' long; one would be 11' wide, two 21' wide, and one 27' wide.	
Residences:	
For greenhouse propagator .....	20,000
For the head guard .....	19,000
Three gateways for the main, 'R' Street, and Baltimore Parkway entrances, consisting of stone piers and double wrought-iron gates. Main gate would also have abutting stone walls .....	50,000
Flood wall along Hickey Creek to prevent recurrence of serious erosion problem .....	70,000
Grading, foot paths, trails, etc. ....	<u>150,250</u>
Total .....	434,250
Less amount in base for 1960 .....	<u>234,250</u>
Increase needed .....	<u>200,000</u>



UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE

National Arboretum

	Obligations 1948-57	Obligations: 1958	Estimated: Obligations: 1959	Budget Estimate 1960	Future Years	Total
A. Development of physical facilities:						
1. Acquisition of land .....	\$236,135					\$286,135
2. Preparation of plans and specifications for buildings, roads, and other facilities .....	138,600	\$12,500			\$56,000	207,100
3. Buildings:						
Headquarters office and laboratory buildings providing rooms for an herbarium, library, group meetings, exhibits, and offices, and designed for future extensions .						
Greenhouse facilities .....			\$166,000	\$125,000	1,319,000	1,319,000
Residences (2):						291,000
Propagator's residence .....				20,000		20,000
Guard's residence .....				19,000		19,000
Entrance facilities:						
Guardhouse, restrooms (including sewer lines and septic system) .....	51,273					51,273
Entrance gates, drinking fountains, public shelters, etc. ....		4,890		50,000		54,890
Service buildings:						
Motor vehicle building and shop .	63,001					63,001
Farm machinery buildings .....	18,000	8,348				26,348
Equipment and supplies buildings.		17,467	20,000			37,467
Total, buildings .....	132,274	30,705	186,000	214,000	1,319,000	1,881,979

	Obligations 1948-57	Obligations: 1958	Estimated Obligations: 1959	Budget Estimate 1960	Future Years	Total
A. Development of physical facilities - Cont.						
4. Roads:						
Roads (7.5 miles), bridges and roadside grading .....	433,918	168,782	26,750			629,450
9 miles of footpaths and trails, parking areas and overlooks .....	26,000	20,000		36,250		82,250 <sup>a/</sup>
Total, roads .....	459,918	188,782	26,750	36,250		711,700
5. Utilities:						
Water supply, sewage, and electric lines .....	104,900	4,947	2,000	28,000		139,847
Equipment .....	24,500		19,500	8,000		52,000
Fencing, grading, repairs and miscellaneous .....	112,681	3,389		148,000 <sup>b/</sup>		264,070
Total, physical facilities and land ..	1,259,058	240,323	234,250	434,250	1,375,000	3,542,881
B. Operation and maintenance .....	1,368,065	273,823	298,750	298,750	c/	- -
Total, National Arboretum .....	2,627,123	514,146	533,000	733,000	- -	- -

a/ Balance of program to be handled within future "operation and maintenance".

b/ Includes \$12,000 for new fencing, \$70,000 for Hickey Creek flood wall.

c/ To be determined annually; requirements dependent on progress in installation of physical facilities and development of plant collections.

(b) An increase of \$600,000 to provide laboratory facilities for crops research at Logan, Utah.

Need for Increase: Facilities are needed to serve as headquarters for sugar beet production, breeding, disease, and quality investigations for the Intermountain Area, as well as facilities for regional research on nematodes, forage and range plants, and new crops.

The property used for many years to provide facilities for sugar beet research at Salt Lake City, Utah, is to be sold and the lease cannot be renewed after its expiration on June 30, 1960. It is essential that sugar beet production, breeding, disease, and quality research be continued in the Intermountain Area and that facilities be available for regional research on nematodes, forage and range plants, and new crops. Growers in the Intermountain Area receive nearly \$50 million annually from sugar beets, about one-fourth of the national income from this crop.

Sugar beet research in the facilities would be aimed primarily at the solution of the problems of sugar beet production in the Intermountain Area, but the work and some of the germ plasm developed would have application in other areas. Research would be conducted on breeding for improved quality and disease resistance, such as resistance to strains of curly top and yellows virus, and nematodes; on development of male sterility as a tool in hybrid seed production, and on monogerm seed types to facilitate mechanization; on basic physiology of the sugar beet, especially relating to reduced quality at high levels of fertility and to respiration losses and spoilage in harvested roots; and on polyploidy and interspecific hybrids. The research on nematodes would include taxonomy and control, with emphasis on forms attacking sugar beets.

Cooperative research on grasses would be directed toward the improvement of millions of acres of range land in the area and the evaluation of grasses and legumes for resistance to disease and drought. The research on new crops would be concerned with the production, improvement, and testing of new crops, especially those adapted to the area which shows promise of use for industrial purposes. The crops research would be related to and coordinated with research investigations already being conducted at Logan on insects that attack these crops.

Plan of Work: The estimate covers plans, specifications, and costs of construction of facilities to provide approximately 15,700 sq. ft. for laboratory, office and research needs for threshing, storage, etc. It would also provide laboratory benches, fume hoods, special equipment for washing and pulping roots, equipment needed to control temperature and light in experimental rooms, temperature and moisture in root and seed storage, and other research equipment.

It is planned to locate the facilities near the Utah Agricultural Experiment Station, Logan, Utah, where the Department is already conducting related entomology research. There are many advantages to locating the research near an agricultural experiment station of recognized standing with all of its scientists and facilities for related work. The Utah Agricultural Experiment Station is not in position to provide the needed facilities, but would cooperate extensively in the research work.



- (3) An increase of \$71,000 to reimburse the Department of the Army for transfer of laboratory facilities for entomology research at Orlando, Florida.

Need for Increase: Since 1953 the Department of Agriculture has used part of the former Air Force Base Hospital facilities at Orlando, Florida for entomology research. The area has been occupied under a Department of the Army use permit which expires July 13, 1959. The proposed increase would provide for reimbursing the Department of the Army for the total area of about 19 acres with facilities thereon, at the value established by the Administrator of the General Services Administration. Under authority of Section 202(a) Federal Property and Administrative Services Act, 1949, as amended (40 U.S.C. 483) the Administrator of the General Services Administration, with the approval of the Director of the Bureau of the Budget, is directed to prescribe the extent of reimbursement for transfer of excess property. The proposal is presented in the Budget so that the Congress may review and approve the proposed transfer of the Orlando facility from the Department of the Army to the Department of Agriculture.

These facilities continue to be needed for research and development of improved methods for control of insect pests important to civilians and to the Armed Forces, such as research on insect repellents, biological control measures on household insect pests, development of effective measures for control and eradication of the screwworm which infects cattle and other livestock, and for the development and improvement of methods to control the Mediterranean fruit-fly, nematodes, and other pests. Since occupying the site in 1953, in excess of \$100,000 has been expended by the Department on rehabilitation, maintenance, and improvements of these facilities. Their estimated replacement cost is \$400,000.

#### Plant and Animal Disease and Pest Control

- (4) A net increase of \$473,000 under the activity "Plant pest control" composed of:

- (a) Increase of \$480,000 for cooperation with the States in suppressing and preventing further spread of the soybean cyst nematode.

Need for Increase: The soybean cyst nematode was first discovered in this country in New Hanover County, North Carolina in August 1954. This nematode is indigenous to Japan, Korea, and China and in those countries it is an important economic pest of the soybean crop. Soybeans are being grown on 24 million acres this year in the United States and the annual value of the crop is approximately 1 billion dollars. The soybean cyst nematode is now believed to be confined to a very small percentage of the Nation's soybean acreage, but it is a serious threat to this important industry.

Immediately after discovery of the soybean cyst nematode in North Carolina, surveys were started to determine its distribution. As of November 15, 1958, infestations have been found on 551 farms in 22 counties in the States of Arkansas, Kentucky, Mississippi, Missouri, North Carolina, Tennessee, and Virginia. Farmers are becoming increasingly alarmed about the damage resulting from this pest and the losses which it causes.

At present there is no known practicable method of eradicating the soybean cyst nematode once it becomes established in a field. As yet there are no commercially acceptable varieties of soybeans that are resistant to attack. Once a field is infested, damage can be avoided only by a crop rotation in which soybeans are grown only once in 3 to 5 years.

Plan of Work: In cooperation with the affected States, the Department plans to: (1) conduct such surveys as are necessary to establish the boundaries of all existing infestations in this country; (2) enforce Federal quarantines in such a way as to prevent further spread of the pest, yet permit the movement of crops and machinery from infested lands, and (3) encourage the adoption of farm practices which will hold infestation to a minimum pending the development of eradication procedures or until varieties of soybeans can be produced which are resistant or immune to attack.

Financing: In the fiscal year 1959, \$447,100 is being used for the soybean cyst nematode program of which \$127,100 is allotted from regular funds and \$320,000 from the Contingency Fund. It is estimated that \$607,100 will be needed in 1960, an increase of \$480,000 over the \$127,100 available from regular funds for the program. Thus, it will not be necessary in 1960 to finance the work from the Contingency Fund, the purpose of which is to meet unforeseen incipient and emergency infestations.

(b) Decrease of \$7,000 due to the anticipated provision in the direct appropriation to General Services Administration for certain leasing costs now paid from this appropriation.

Note: A total decrease of \$25,000 is proposed due to transferring such costs to the General Services Administration. The total decrease is distributed by projects as follows:

Plant pest control	-\$7,000
Animal disease control and eradication	-18,000
Total	<u>-25,000</u>

For convenience, a single justification of the decrease is presented here.

Decrease: In the fiscal year 1960, the General Services Administration will assume the cost of certain leases heretofore paid from this appropriation for the rental of office space occupied by the Agricultural Research Service at Sacramento, California; Jacksonville, Florida; Springfield, Illinois; Indianapolis, Indiana; Jackson, Mississippi; Lincoln, Nebraska; Beaumont, Houston, and San Antonio, Texas; and Salt Lake City, Utah. The annual rental of these properties now totals \$25,787. This proposal provides solely for a different method of financing rentals. The facilities continue to be needed for program operations.

(5) A net decrease of \$4,418,000 under the activity "Animal disease control and eradication" composed of:

(a) A decrease of \$5,000,000 in the brucellosis program.



Cost of accelerated program: Under Section 204(e) of Title II of the Agricultural Act of 1954, Public Law 690, approved August 28, 1954, provision was made for \$15,000,000 annually to be transferred from Commodity Credit Corporation for the purpose of accelerating the Brucellosis eradication program. This section was further amended by Public Law 465, approved April 2, 1956, to increase the amount for the fiscal year 1956 to \$17,000,000 and the amount for each of the fiscal years 1957 and 1958 to \$20,000,000. In 1959 the program is being financed entirely by a direct appropriation of \$20,000,000, (plus \$556,800 to be requested in a supplemental estimate for pay act costs), included in "Salaries and Expenses, Agricultural Research Service, plant and animal disease and pest control."

The following tabulation shows the cost of the brucellosis program for fiscal years 1954 through 1960 and the amounts provided by the Federal government and the State cooperators:

<u>Fiscal Year</u>	<u>Federal Government</u>			<u>State Cooperators</u>
	<u>Regular Funds</u>	<u>C.C.C. Funds</u>	<u>Total</u>	
1954	\$3,677,084	- -	\$3,677,084	\$12,204,256
1955	3,774,700	\$11,558,697	15,333,397	11,233,681
1956	3,961,165	16,224,435	20,185,600	15,730,479
1957	3,962,400	17,037,182	20,999,582	15,841,562
1958	4,386,522	17,865,254	22,251,776	16,705,945
1959 (est)	20,556,800	- -	20,556,800	17,668,166(est)
1960 (est)	15,538,800	- -	15,538,800	a/

a/ Not available.

As shown by this tabulation, the States have been increasing their participation in the program.

Benefits attained from program: Extensive gains have been made with the additional funds furnished for the eradication program. Fifteen States and Puerto Rico have attained modified-certified brucellosis-free status, which means that the infection has been reduced to not more than 1% of the cattle in not more than 5% of the herds. This compares with only three States which had achieved that status prior to 1955. A summary as of December 10, 1958, showing the date each received the modified-certified brucellosis-free status follows:

<u>State</u>	<u>Date Certified</u>	<u>State</u>	<u>Date Certified</u>
North Carolina	July, 1942	Delaware	January, 1957
New Hampshire	August, 1949	Minnesota	May, 1957
Maine	July, 1950	Connecticut	July, 1957
		Vermont	August, 1957
		Puerto Rico	November, 1957
Washington	June, 1956	Rhode Island	February, 1958
Wisconsin	June, 1956	Pennsylvania	March, 1958
		Michigan	June, 1958
		New Jersey	June, 1958
		New Mexico	June, 1958
		Utah	June, 1958

In October 1954, prior to the start of the accelerated program, 341 counties had been certified. As of November 30, 1958, 1,376 counties had been certified brucellosis free. To maintain modified-certified brucellosis-free status, counties already certified must requalify at the end of three year periods. Thus there is considerable continuing cost of the program after certification has been achieved.

Proposed decrease: In view of the progress made in the eradication effort and the increasing participation in the program by the State cooperators, the Department is proposing a decrease for this program in the amount of \$5,000,000.

(b) An increase of \$600,000 to continue the program to eradicate and prevent the spread of vesicular exanthema of swine financed in 1959 and prior years by advances from Commodity Credit Corporation.

Previous method of financing the vesicular exanthema eradication program:

The appropriation "Diseases of Animals and Poultry" contains authority for the Secretary to transfer from other appropriations or funds available to the bureaus, corporations, or agencies of the Department such sums as he may deem necessary for eradication of various contagious and infectious diseases of animals and poultry not now prevalent in the United States to be available only in an emergency which threatens the livestock or poultry industry of the country. For fiscal year 1959, the language of that appropriation stipulates that not to exceed \$1,000,000 may be made available for eradication of vesicular exanthema of swine. This limitation does not provide for pay act costs under P.L. 85-462, estimated at \$77,000 for fiscal year 1959.

The following table shows the costs of the vesicular exanthema eradication program by fiscal years since an emergency was declared on August 1, 1952:

<u>Fiscal Year</u>	<u>Operating Expenses</u>	<u>Indemnities</u>	<u>Grand Total</u>
1953	\$550,554	\$1,662,479	\$2,213,033
1954	1,342,892	255,089	1,597,981
1955	1,916,894	165,081	2,081,975
1956	2,010,777	81,403	2,092,180
1957	1,303,240	52,499	1,355,739
1958	1,258,044	none	1,258,044
1959 (est.)	1,077,000	none	1,077,000
1960 (est.)	600,000	none	600,000

Need for continuation of program: Vesicular exanthema is a highly infectious disease of swine most often spread by contact with infected swine, contaminated shipping and handling facilities, and the feeding of raw garbage. Constant surveillance must continue to be maintained to discover new cases promptly and to stamp out any infection before it has a chance to spread. It is essential that there be close surveillance over movements of garbage-fed swine that are marketed through stockyards having Federal inspection, since the disease may be spread by infected hogs contacting susceptible hogs in transit.



The feeding of raw garbage may be a means of spreading not only vesicular exanthema but also other diseases of livestock and poultry such as foot-and-mouth disease, hog cholera, tuberculosis, trichinosis, and many other diseases.

It is recommended that, beginning with the fiscal year 1960, this work be financed from "Salaries and Expenses, Agricultural Research Service." It is proposed that \$600,000 be made available for its continuance. Since the cost of the program in fiscal year 1959, financed from Commodity Credit Corporation funds, is estimated at \$1,077,000, this actually represents a proposed decrease in the cost of the program of \$477,000.

Plan of Work: Approximately one-half of the 1960 funds, \$300,000 would be used for inspection of swine at stockyards as an indicator of the health status of the hogs on the farm. This is about the same amount as used for this purpose in fiscal year 1959. In addition about \$300,000 would be used to cooperate with the State programs for control of vesicular exanthema and other garbage-borne diseases, including inspection, quarantine, control over swine movements, etc., and to provide personnel for enforcement of regulations governing interstate movement of garbage-fed swine which do not pass through public stockyards. While about \$750,000 is available in 1959 for this latter phase of the program, the reduction to \$300,000 anticipates that as the Federal government gradually decreases its inspection force, the States may make some offsetting increase in theirs.

(c) Decrease of \$18,000 due to providing in the direct appropriation to the General Services Administration for certain leasing activities described under item (4) b.

#### Meat Inspection

(6) Increase of \$500,000 under "Meat Inspection" to (a) put on a full year's basis the employment of meat inspectors provided by the appropriation of \$1,750,000 in the Supplemental Appropriation Act, 1959, approved August 27, 1958, which was available for only 10 months; (b) meet added responsibilities due to the enactment of the law relating to humane slaughter methods (P.L. 85-765) approved August 27, 1958, and (c) employ qualified inspection personnel to service the increasing number of meat packing plants applying and qualifying for the inspection service.

Need for Increase: In fiscal year 1960, funds to meet the full year costs of the inspectors provided under the funds in the Supplemental Appropriation Act, 1959 are needed. That Act, which appropriated \$1,750,000 to strengthen the meat inspection service, was approved August 27, 1958. The funds were available for only 10 months of the fiscal year. The Budget Estimate had requested \$2,100,000 for the entire 1959 fiscal year, but \$1,750,000 was appropriated on the basis that such increase should be adequate to finance the program at the rate at which additional meat inspectors can be recruited during the balance of the fiscal year. To meet the full year costs, an increase of \$350,000 is necessary.

The remainder of the increase for fiscal year 1960, \$150,000, is needed to meet an increased workload. The number of cities and towns in which plants are located has increased each year since 1954, as shown by the following tabulation:

<u>Fiscal Year</u>	<u>Number of Plants</u>	<u>Number of Cities &amp; Towns</u>
1954	1,067	410
1955	1,120	435
1956	1,184	471
1957	1,244	502
1958	1,300	518
1959 (est.)	1,360	540
1960 (est.)	1,400	555

It is essential that the standards of the Federal Meat Inspection Service be maintained. It is estimated that by the end of fiscal year 1960, service will be required at 1,400 plants in 555 different cities and towns. This is an increase of 40 additional plants to be serviced during the year. Full utilization of packing plants, by putting on additional shifts, is now a well-established industry practice. It is expected that the number of meat-packing plants processing around the clock and requiring inspection service 24 hours a day will continue to increase in 1960. The Service must be ready to meet these additional demands.

On August 27, 1958, the Act relating to the use of humane methods of slaughter of livestock (P.L. 85-765) was approved. This Act placed responsibilities for additional research and regulatory activities on the Department. It will be necessary during fiscal year 1960 to expand work with the industry relative to publicizing the requirements of the Act, and assisting packers in effecting compliance.

#### CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

- 1 For expenses necessary to perform agricultural research relating to production [and utilization], utilization, and home economics, to control and eradicate pests and plant and animal diseases, and to perform related inspection, quarantine and regulatory work, and meat inspection: \* \* \* \* Provided further, That appropriations hereunder shall be available for the operation and maintenance of aircraft
- 2 and the purchase of not to exceed two [, of which one shall be] for replacement only: \* \* \* \* \*

- 3 Research: For research and demonstrations on the production and utilization of agricultural products, home economics, and related research and services, including administration of payments to State agricultural experiment stations; [\$59,044,890] \$64,240,000:
- 4 Provided, That not to exceed \$71,000 may be used for reimbursement

- to Department of the Army for land and improvements at Orlando, Florida, to be transferred pursuant to the Federal Property and Administrative Services Act of 1949, as amended: Provided further, That the limitations contained herein shall not apply to (a) replacement of buildings needed to carry out the Act of April 24, 1948 (21 U. S. C. 113a), or (b) not to exceed \$639,000 for the construction and alteration of buildings: Provided further, That the Secretary is authorized to acquire by donation lands necessary for the construction thereof;

- Plant and animal disease and pest control: For operations and measures, not otherwise provided for, to control and eradicate pests and plant and animal diseases and for carrying out assigned inspection, quarantine and regulatory activities, as authorized by law, including expenses pursuant to the Act of February 28, 1947 (21 U.S.C. 114b-d); [\$47,132,000] \$49,110,000, of which [\$1,000,000] \$1,500,000 shall be apportioned for use pursuant to section 3679 of the Revised Statutes, as amended, for the control of outbreaks of insects and plant diseases to the extent necessary to meet emergency conditions;
- 7 [For an additional amount for "Salaries and expenses", as follows:]  
[Plant and animal disease and pest control, \$3,500,000, of which \$500,000 shall be apportioned pursuant to section 3679 of the Revised Statutes, as amended, for the control of outbreaks of insects and diseases to the extent necessary to meet emergency conditions:]  
[Meat inspection, \$1,750,000.]
- 8 [Not to exceed \$346,000 of the amount made available under this head in the Department of Agriculture and Farm Credit Administration Appropriation Act, 1958, may be used until June 30, 1959, for construction, alteration and repair of buildings and the limitation on building construction or alteration contained therein shall not apply to said amount.]

The first and third changes in language propose references to research on home economics. This activity is treated as a separate entity from utilization in the project structure. The change is proposed merely to clarify the language; it would not affect in any way the nature and scope of work carried out under this item.

The second change deletes the authority contained in the 1959 Act to purchase an additional airplane, since it is not anticipated that an additional airplane will be required in fiscal 1960.

The fourth change provides authorization for reimbursement of not to exceed \$71,000 to the Department of the Army for about 19 acres of land with improvements, located at the Orlando (Florida) Air Force Base to be transferred to the Department of Agriculture pursuant to the Federal Property and Administrative Services Act of 1949, as amended. The property has been used for entomology research since 1953 and more than \$100,000 has been spent by the Department on rehabilitation, maintenance and improvement of the facilities.



The estimated replacement cost is \$400,000. The facilities continue to be needed for the entomology research program. The permit for the use of the property expires July 13, 1959. Transfer of the property would be at the fair value established by the Administrator of the General Services Administration.

The fifth change provides authorization for the construction of facilities the cost of which is estimated as follows:

Laboratory facilities for crops research at Logan, Utah ...	\$600,000
Residences (2) at National Arboretum, Washington, D. C. ...	39,000
Total .....	<u>639,000</u>

It also provides for acquisition of land by donation, since the proposed location of the crops laboratory is at a State agricultural experiment station, and it is anticipated that the land needed for the laboratory will be donated.

The laboratory for crops research at Logan, Utah is needed for research work on sugar beet production, breeding, disease, and quality investigations for the Intermountain Area and for research on nematodes, forage and range plants, and new crops for that region. The property used for many years for sugar beet research at Salt Lake City, Utah, is to be sold and the present lease cannot be renewed after its expiration on June 30, 1960.

The two residences at the National Arboretum are a part of the long range program to complete the physical facilities required. They are needed for the head guard and greenhouse propagator to provide local supervision whenever the Arboretum is open to the public, and for the continuous protection of facilities and growing plants.

The sixth change is needed to authorize the use of this subappropriation, without provision of additional funds, for payments to the Joint Mexican-United States Commission for the Prevention of Foot-and-Mouth Disease. This Commission, the successor to a similar Joint Commission on eradication, was established in 1952 for prevention work and standby activities in case of another outbreak. These prevention and standby activities were transferred to this appropriation in fiscal year 1954 from the appropriation presently designated, "Diseases of Animals and Poultry." The Joint Commission is now financed by monthly payments from Mexico of 5,000 pesos (about \$4,800 per year at current exchange rates), and from a dollar account established from the sale of surplus equipment and other items following the last eradication program. The latter payments, amounting to about \$20,000 annually, constitute the contributions of the United States, but the dollar account from which they are being made will be exhausted by the close of fiscal year 1959.

Since the above transfer, Comptroller General's decision B-120739 (34 Comp. Gen. 236) with regard to specific versus general appropriations appears to preclude payment of funds to the Commission from this appropriation unless specifically authorized, because the appropriation, "Diseases of Animals and Poultry" contains specific reference to the Act of February 28, 1947. In the absence of an emergency, and with the exhaustion of the dollar account to finance U. S. contributions to the Joint Commission for the Prevention of Foot-and-Mouth Disease, it has become necessary to propose specific authority for financing the essential activities of this Commission from the appropriation for salaries and expenses. In the event of another emergency, the

payments to the Commission and other necessary activities would again be financed from the appropriation, "Diseases of Animals and Poultry." Funds under that appropriation are available only when an emergency which threatens the livestock industry of the United States is declared by the Secretary of Agriculture.

Two extensive outbreaks of foot-and-mouth disease since 1946 have been successfully eradicated through the cooperative efforts of the Mexican and United States Governments. The net cost to the United States was approximately \$135 million. The Department considers it essential, therefore, that the Joint Commission be continued for several more years in order to assure immediate investigation of disease conditions that could be foot-and-mouth disease, and prompt action to prevent spread of this disease should it occur again. Employees of the Commission, assisted by cooperating U. S. and Mexican personnel, investigate numerous cases of suspected foot-and-mouth disease, and maintain equipment ready for action in an emergency. It is definitely in the interest of both countries to exercise the utmost vigilance to prevent the recurrence and spread of foot-and-mouth disease. The existence and spread of this disease in an adjoining country would be a serious threat to the livestock industry of the United States.

The language "not otherwise provided for," is inserted solely to indicate that there is another appropriation, "Diseases of Animals and Poultry," which is available for animal disease control activities and is limited to declared emergencies.

The seventh change deletes language included in the Supplemental Appropriation Act, 1959, providing an additional \$3,500,000 for plant pest control activities, and an additional \$1,750,000 for meat inspection. Funds which are needed in fiscal year 1960 for these activities have been included in the Budget Estimates. The increase of \$500,000 for the contingency fund, which was for pink bollworm control in the Southwest, has been reflected in the contingency fund limitation of the 1960 Budget Estimates.

The eighth change deletes language included in the Supplemental Appropriation Act, 1959, which reappropriated \$346,000 of unobligated funds provided for fiscal year 1958. Because of increased construction costs, it had been impossible to award contracts for all of the research facilities authorized for fiscal year 1958. The reappropriation permitted proceeding with the construction of the remainder of the facilities and this language is no longer necessary.

AGRICULTURAL RESEARCH SERVICE

Use of Foreign Currencies for the Conduct of Research Abroad  
under Sections 104(a) and (k), of Title I of Public Law 480

1. Authority: Beginning in fiscal 1958, the Department, through the Agricultural Research Service, initiated a program of utilization research abroad financed from allocations of foreign currencies arising from the sale of surplus agricultural commodities under Title I of Public Law 480. This utilization research, authorized by Section 104(a), of P. L. 480, is expected to lead to the development of new uses for surplus agricultural commodities and to aid in the expansion of export markets.

P. L. 480 was amended June 30, 1958 (P. L. 85-477) by the addition of a new subsection 104(k) authorizing the use of foreign currencies derived from the sale of surplus agricultural commodities, to the extent appropriated by the Congress, for the conduct of scientific activities abroad.

The Supplemental Appropriation Act, 1959 (P. L. 85-766), approved August 27, 1958, appropriated \$5.1 million to the account "Funds Appropriated to the President" for use in purchasing foreign currencies to conduct scientific activities abroad and to provide translation services as authorized by Section 104(k). Of this appropriation, \$3.9 million was earmarked for the conduct abroad of farm, forestry, and marketing research by the Department of Agriculture.

The funds provided in the 1959 Supplemental Act has not been allocated to the Department as of January 15, 1959. However, benefiting from its experience in initiating a utilization research program abroad, the Department has made preliminary plans for the conduct of farm, forestry, and marketing research in foreign countries, and negotiations with qualified foreign institutions will be initiated in Chile, Finland, Poland, Yugoslavia, Israel, India, Pakistan, and Indonesia shortly after the funds are allocated and apportioned.

2. Objective: The large number of problems needing solution in the fields of utilization, farm, forestry, and marketing research has been increasingly evident in recent years. The use of foreign currencies arising from Public Law 480 transactions to undertake research beneficial to the United States presents an opportunity to take advantage of the skills and facilities of foreign research institutions to help solve some of these problems.

3. Relationship to Regular Research Programs: All overseas agricultural and forestry research financed from foreign currencies under Sections 104(a) or (k) will supplement and complement that financed by regular dollar appropriations available to the Department. The foreign projects will not duplicate or displace the domestic scientific research activities of the Department or of its cooperating institutions or agencies.

4. Administration: The Foreign Grants and Contracts Program, an organizational unit within the Agricultural Research Service, has been assigned responsibility for administering and supervising utilization research activities overseas financed from currencies available to the Department under Section 104(a). This same unit will also supervise and administer Section 104(k) programs abroad in the fields of farm, forestry, and marketing research.



Policy will be developed and broad research program matters will be decided by a Policy and Program Development Board consisting of Agricultural Research Service's Director of the Foreign Grants and Contracts Program; the Deputy Administrators of Farm Research and Utilization Research, ARS; the Deputy Administrator for Marketing Research, Agricultural Marketing Service; the Assistant Chief for Research, Forest Service; and the Deputy Administrator of Foreign Agricultural Service. Research proposals from foreign institutions will be reviewed and appraised for technical adequacy and benefits to the United States in ARS, AMS, or FS by the research divisions concerned with the subject matter of each proposal. The Department's Central Project Office would also be utilized to achieve coordination and avoid duplication with research undertaken by the Department in the United States.

In addition to the Washington staff, a small European regional office in Rome, Italy, reports to the Director of the Foreign Grants and Contracts Program. This Rome office will be responsible for the negotiation and administration of the utilization, farm, forestry, and marketing research contracts or grants in the several European countries and in Israel.

Subject to the availability of foreign currencies, it is anticipated that research programs under Sections 104(a) and (k) can be negotiated in the Far East and in South America. Dependent upon the extent of such programs in these areas, consideration may be given to the establishment of a regional office in the Far East, and another in South America, with responsibilities in their geographic areas similar to those of the Rome office.

Both grants and contracts will be used as instruments for the activation and control of the projects. Grants will be used particularly for fundamental research, which by its nature is difficult and sometimes impossible to outline in precise contract specifications. Grants might be used, also, in some areas of applied research, as indicated by circumstances. Contracts will be used for projects in which the plan of work can be spelled out in detail. Grants or contracts will be made for an entire project in one year, and provide for its completion up to five years from the date of the grant or contract. The total cost of the grant or contract is obligated at the time it is executed. Actual payments to the contractor are made in increments determined during negotiation. This procedure insures that all projects initiated will be completed without need for additional funds.

5. Criteria: Research projects to be initiated abroad under Section 104(a) and (k) will be those which will benefit American agriculture and forestry. This will be the most important criterion in the selection of projects to be financed with foreign currencies. The research will be undertaken in institutions having highly trained scientific personnel with specialized experience, special techniques, suitable facilities, or having available unique environmental conditions or material (such as germ plasma not available in the United States) which would enable them to carry out particular research work more rapidly or efficiently than can now be done in this country, or to attack problems upon which we have been unable to proceed.

Research will be undertaken in both applied and basic fields. However, in light of the character of personnel abroad and their background training and experience, as well as facilities available, it is believed the majority of research projects undertaken would be of a fundamental or basic nature. For the most part, basic findings developed through the foreign research program could be readily applied in this country.



6. Types of Research Projects: Projects which are especially appropriate to be undertaken overseas may include, but would not necessarily be limited to the following:

Utilization Research

- (a) Fundamental studies (1) to determine the effect on baking quality of wheat flour lipids as influenced by wheat variety and conditions of growth, (2) on the mild oxidation of cereal grain starches to determine the properties of the modified starches of importance to the production and use of this class of industrial starches, and (3) on the alteration in starches brought about by gamma-radiations to provide information needed for treatment of starch-containing products used industrially or in foods.
- (b) Cotton studies relating to (1) microbial breakdown of natural cotton fibers, (2) improvement of flame resistance, special finishing treatments, and preparation of new finishing compounds of cotton fibers, (3) crimp in cotton fibers and its effect on processing performance and product quality, and (4) the development of methods and equipment for counting reps as aids to improving cotton textile product quality.
- (c) Wool yarn studies to determine more economical knitting operations and improved fabrics.
- (d) Dairy products investigations to differentiate microorganisms important in manufacturing processes; to study transmission and means of minimizing transmission of flavor constituents or other biologically active compounds from feed to milk; and to study milk composition and the relation of mineral salts in evaporation.
- (e) Studies of stability or flavor in processed vegetables and fruits relating to (1) use of new and improved stabilizers, (2) chemical changes in carotenoid pigments, (3) microbial flora in internal tissues, (4) protective action of sulphur dioxide; and studies of composition of dry beans and peas.
- (f) Studies of mechanism of deterioration of leather fibers by chemicals, heat, and perspiration to develop more stable tannages.
- (g) Meat studies relating to influence of microorganisms on flavor development or other changes in dry sausage, pigment formation and color fixation during curing of pork and changes occurring in meat fibers when dehydrated by accelerated freeze-drying processes.

Farm Research

- (a) Studies of virus diseases attacking the livestock of European and Asiatic regions of potential danger to the United States.

- (b) Studies of foreign plant diseases, such as nematodes, virus diseases and certain races of rusts so as to be able to combat them if and when they reach the United States.
- (c) Studies of foreign insects which attack weeds which might safely be used in the United States in the control of undesirable plants.
- (d) Studies of foreign insect pests that are already present or likely to become established in the United States, with emphasis on biological control (parasites, predators, and diseases).
- (e) Evaluating and obtaining detailed information on genetic traits of foreign breeds of livestock.
- (f) Collecting plants potentially adaptable to industrial and commercial utilization in areas not now being surveyed.
- (g) Exploration of various forms of land holdings, rents, and leases used in foreign countries and their effects on the economic status of farmers.

#### Forestry Research

- (a) Evaluation of the physical, mechanical and machining properties of European and Asiatic woods to fill the gaps in a worldwide compilation of wood properties of foreign woods of special interest to United States industries.
- (b) Laboratory studies on the natural durability of wood species from foreign countries of particular concern to American industry.
- (c) Study of forest soil and water conservation in situations comparable to conditions in the United States.
- (d) Study of the effects of tree planting on windswept slopes on soil and water conservation in snowfall and rainfall areas, respectively.
- (e) Study of the relation of land management practices to permafrost in northern forest regions.
- (f) Study of basic principles and methods of control of landslides, snow avalanches, and torrents in situations applicable to problems of western United States.

#### Marketing Research

- (a) Study of metabolic products produced by various species of bacteria in milk.
- (b) Study of rapid method for determining maturity of fruits.
- (c) Development of sampling procedures and objective methods for use in quality grading of grapes for processing.

- (d) Study of dormancy and moisture interrelationships of crop seeds.
- (e) Development of quick tests for the keeping quality of bacon and other meats cured by European methods.

7. Financing: Foreign currency obligations in 1958 and estimated obligations in 1959 and 1960, expressed in dollar equivalents, are as follows:

<u>Type of Research</u>	<u>Actual, 1958</u>	<u>Obligations (Dollar equivalents)</u>	
		<u>Estimated, 1959</u>	<u>Estimated, 1960</u>
Utilization, Sec. 104(a) ...	\$371,484	\$6,628,516	\$10,000,000
Farm, Sec. 104(k) .....	- -	a/ 1,960,000	b/
Forestry, Sec. 104(k) .....	- -	a/ 1,720,000	b/
Marketing, Sec. 104(k) .....	- -	a/ 220,000	b/
Subtotal, Sec. 104(k) ....	- -	3,900,000	- -
Total .....	<u>371,484</u>	<u>10,528,516</u>	<u>b/10,000,000</u>

a/ Based on amounts in the Supplemental Appropriation Act, 1959, under "Funds Appropriated to the President."

b/ Estimates for 1960 not yet developed.

The obligations under Sections 104(a) and (k) cover the cost of the contracts or grants made with the foreign research institutions and a small amount for travel and expenses of Department of Agriculture technical and supervisory personnel, salaries of foreign personnel in foreign regional offices, foreign allowances of United States personnel stationed abroad, and other expenses of foreign offices.

The salaries and expenses of the program director and his staff located in Washington, D. C., salaries of United States personnel stationed abroad, and the salaries of United States personnel engaged in surveys, etc., in foreign countries will be paid from the regular appropriations of the Departmental agencies concerned with the research.





## STATUS OF PROGRAM

The Agricultural Research Service carries out the Department's scientific research in the fields of livestock, crops, soil and water conservation, farm economics, agricultural engineering, utilization research and development, and home economics. It conducts both fundamental and applied research in these fields, utilizing physical, biological and economic sciences.

Research is conducted at the 12,000-acre Agricultural Research Center, Beltsville, Maryland, and at numerous locations in the States, Territories and Possessions, and in foreign countries. A large part of the research is in cooperation with State agricultural experiment stations and other public and private agencies. Research is also conducted under contract with various public and private agencies and institutions.

Programs for control and eradication of plant and animal diseases and pests are conducted to prevent introduction into the United States of pests and diseases of foreign origin, to prevent the spread interstate of those within the country, and to control and eradicate them where found. These programs are conducted at numerous locations in all States and Territories, on farms, and ranches, at sea, air, and border ports of entry, in public stockyards and establishments licensed under the Virus-Serum-Toxin Act, etc.

Work of the Service also includes enforcement of the Federal meat inspection laws to assure production of disease-free, clean, and wholesome meat and meat products for both civilian and military use and for foreign commerce. This is accomplished by supervising slaughtering and meat processing operations at meat packing plants, application of controls over imported meats to assure the same protection as in the case of meats produced domestically, and supervision of a system of certifying meats for export to keep foreign markets open to American meats.

As a part of its regular programs, the Agricultural Research Service conducts research and prepares plans for preventing or combating foreign plant and animal diseases which might be intentionally introduced into the United States. Research is also conducted on protective measures for decontamination and utilization of crops, animals, or soils affected by direct radiation or radio-active fallout.

## FARM RESEARCH

Current activities: Investigations are conducted on production methods and improvement of field and horticultural crops and of farm livestock, poultry, and domestic fur animals, including means of control of plant and animal pests and diseases. Soil and water conservation research is conducted to develop new and improved soil and crop management practices, improve irrigation and drainage methods, develop information on watershed hydrology, improve fertilizers and liming materials, and determine the relations of soils to plant and animal nutrition. Farm economics studies are made to find profitable adjustments in farming by type and size of farm and their relation to costs, returns, and total farm output of different products. Farm economic research also covers investigations of efficiency in use of labor, equipment, land, water, and new and improved farming techniques, inventory and analysis of land resources, and problems of land valuation,



taxation, debt, tenure, and risk. Engineering studies are made to improve the mechanization of crop and livestock production and the harvesting and processing of farm crops, to develop better types of farm structures and new uses for electricity on farms, and to adapt electrical equipment to farm use.

In recent years farm research has been continuously reviewed to emphasize work which would meet problems of agricultural surpluses, as well as market demands. This has included breeding and development of the meat-type hog to reduce fats in surplus, production of milk with high solids and lowered fat content, corn with waxy starch for glues and adhesives, corn with high amylose content for industrial use, etc. The program for introduction and development of new crops has also been expanded and basic research essential to agricultural needs has been steadily increased.

### Selected Examples of Recent Progress

#### Animal Husbandry Research

1. Heart-girth measurements and udder palpations aid in culling heifers. Analyses of more than a thousand cooperative records show that heart-girth measurements at 6 and 12 months of age and evaluations of udder development by palpations at 5 months may be useful in culling heifers on the basis of potential production. These indicators, when used with records of the dams, aid in predicting future milk production of heifers. The correlation of the dam's record with milk production of her daughter was found to be .14. In estimating the daughter's milk production, heart-girth measurements at 6 months of age, used with dam's milk record, resulted in a correlation of .20 with actual production of the daughter. Using heart-girth measurements at 12 months as well as at 6 months raised this correlation to .22.

When heart-girth or scale weights were combined with udder evaluations and the dam's record, predictions of first lactation production were twice as reliable as when the dam's record alone was used. Information obtained by udder palpation alone is approximately half as accurate as the animal's own first record as a basis for culling.

2. Relation of dairy type to production found to be low. A study of the influence of dairy type on milk production in a cooperative project at the Ohio Experiment Station, involving approximately 1,000 animals evaluated for type at 3 months, 6 months, 12 months and 3 years, indicated that in general there was a rather low association between nearly all type categories and milk production. The highest association appeared to be in regard to size, shape of udder, and dairy character. The heritability of type characteristics of the sire and those of his daughters appeared to be low. The usefulness of type scoring of the dam as a means of predicting the type of the daughter also appeared low in these data, particularly in regard to udder characteristics.
3. Alfalfa silage not fully satisfactory for dairy heifers. In a limited-milk, limited-grain, maximum-roughage feeding system for rearing young calves, the substitution for alfalfa of alfalfa silage, a mixture of

alfalfa and corn silage, or alfalfa silage plus small amounts of hay or grain resulted in decreased rate of growth and development. Supplementing the alfalfa silage with corn silage accentuated the decreased rate of growth and development. Supplementing the silage with 1 pound of hay per hundredweight of body weight or with 2 pounds grain per day produced reasonable gains and increased consumption, although growth and development were still somewhat below that produced when only alfalfa hay was used. Supplementing alfalfa silage with 2 pounds of a grain mixture per day for a portion of the growing period improved gain only during the period when it was fed. When this supplement was withdrawn, growth actually failed for 1 to 3 months, and the heifers reverted to the status of those fed silage only. A grain mixture containing 16% protein produced somewhat less gain than a mixture containing 27% protein in this limited-milk, limited-grain, high-forage feeding system. From these results it is evident that these rations and combinations of forages, in which alfalfa silage was the major forage, are not completely satisfactory for dairy heifers.

4. Reproductive failure in beef herds studied. The point at which reproductive failures occur in beef cattle has been determined in studies at Front Royal, Va., and Jeanerette, La. Approximately 15% of the cows placed in breeding herds at these stations over the past 2 years have failed to become pregnant. Another 11% of the cows lost their calves either at birth or within 2 weeks after birth. Studies showed that losses during pregnancy are approximately 2%, and losses after calves are 2 weeks old amount to 1% or less.

Among cows in these herds which fail to become pregnant, 23% of the Hereford cows nursing calves and 22% of the Zebu or Zebu-cross cows nursing calves did not exhibit estrus during the 75-day breeding season. Thirty-four percent of the open Hereford cows nursing calves and 35% of the Zebu or Zebu-cross cows nursing calves came in heat only once during this period. The Angus cows nursing calves, as well as dry cows in all breeds and strains, and heifers, generally have two or more heat periods during the breeding season. Data obtained by slaughtering some of these individuals indicate that embryonic death between the 17th and 21st days is largely responsible for the open cows.

5. Protein and energy intakes affect reproduction in beef heifers. Study of the effect of various levels of protein and energy intake on reproductive performance of beef heifers at Beltsville, Md. and Jeanerette, La., indicates that many heifers placed at weaning on either a low-energy ration or a low-protein ration generally fail to come into heat. They also lack ovarian activity. However, a few heifers on these low rations have become pregnant and have calved. The calves were strong and healthy. The number of services required per conception was not affected by the deficient diets. Many of the heifers have experienced difficulty calving, but this was not confined to any group receiving a particular ration.



6. Calf-raising ability is heritable in beef cattle. Comparisons of weights of calves produced by dams and by their daughters indicate that ability to raise heavy calves to weaning time is a heritable trait. Weaning weights in the U. S. are generally low. This trait is receiving emphasis in the performance testing programs now active in 33 States.
7. Selection improves carcass quality in swine. In a breeding experiment at Beltsville, Md. with purebred Duroc and Yorkshire hogs to determine how fast and to what extent the lean-to-fat ratio in hog carcasses can be changed by selection, lines high in fatness and low in fatness have been successfully established. These breeding animals were selected on the basis of backfat thickness at a live weight of 175 pounds. The Durocs have been selected through three generations and the Yorkshires through one generation.

Selection was about 57% effective in increasing backfat thickness, in the Duroc breed and about 41% effective in decreasing backfat thickness. Selection for high backfat generally resulted in shorter, lower, and wider-bodied pigs, while selection for low backfat tended to increase length and height of body and decrease body width.

Carcass studies obtained on samples of the Duroc pigs showed that the low line generally exceeded the high line in yields of trimmed hams, trimmed loins, and shoulder butts. At the same time, high-line pigs averaged 0.6% higher in yield of bacon and 5.0% higher in percentage of other fat cuts than the low line. These differences show that for each 200-pound pig marketed, low-line pigs average about 6.2 pounds more lean cuts and 10 pounds less fat than high-line pigs. High-line pigs yielded 1.2 pounds more bacon than low-line pigs. The difference in lean-to-fat ratio between high- and low-line pigs is expected to become more pronounced as selection continues.

8. Adding lysine reduces toxicity of cottonseed meal in swine diets. Following the discovery that quantity and quality of protein influence the level of free gossypol required to produce toxic symptoms in swine, pilot studies with rats were conducted at Beltsville on the possible similar effect of adding amino acids. These studies were designed to identify the amino acids which seemed most likely to affect gossypol toxicity. When lysine was so indicated, it was tested with pigs. A diet of corn and cottonseed meal which contained .0028% of free gossypol gave a very poor rate of gain in weanling pigs. The addition of pure, free gossypol to provide a calculated content of .0128% did not affect pig gains but resulted in 33-1/3% mortality. Supplementation of this diet containing .0128% free gossypol with .1, .2 or .3% of L-lysine increased pig gains substantially, and no toxic symptoms were noted. The fact that 2/3 of the pigs in the lot in which mortality occurred showed no toxic symptoms suggests that this level of gossypol was borderline for lethal effects; and that further testing will be necessary to measure the degree of protection afforded by L-lysine at higher levels of free gossypol.



9. Advances made in identifying blood-group systems in sheep. Cooperative work at the University of California has resulted in the identification of six serologically distinct and apparently independent blood-group systems in sheep, in addition to the previously known R-O system. This is an important step toward the possible use of blood-group systems in sheep to determine parentage and identify superior animals and strains.
10. Rapid method for measuring clean-fleece weight at shearing tested. Tests at Fort Wingate, N. M., of a machine for measuring clean-fleece weight show that accurate estimates can be made in less than one minute per fleece. Estimates made by the machine are about as accurate as the presently used method of scouring and weighing small samples. Use of this machine will increase tremendously the possibilities for selection of breeding stock to improve clean-fleece weight.
11. Methionine has growth-promoting effect in young rabbits. At the U. S. Rabbit Experiment Station, Fontana, Cal. supplementing rabbit rations with methionine has significantly increased weights of the young at 8 weeks of age and has resulted in fewer deaths from enteritis and improved feed conversion.
12. Protein and energy levels in laying diets studied. In research on the effect of protein and energy levels in the diet on egg production and efficiency of feed conversion, diets varying from 12 to 16% protein and with energy levels of 750 to 900 productive calories per pound were fed to a high-producing strain of White Leghorn pullets. As in previous studies with lower-producing pullets, broiler-type New Hampshires, and Rhode Island Reds, these dietary treatments had no effect on egg production and in all cases the high energy diets improved feed conversion. There was a slight decrease in egg weight on the 12% protein diet. These results indicate that a 12 to 14% protein diet, well balanced in the essential amino acids, will support optimum performance.
13. Attempt made to determine incidence of parthenogenesis in chickens. Studies have been initiated to determine the incidence of development of egg without fertilization of different breeds of chickens. More than 15,000 infertile chicken eggs have been incubated and examined macroscopically. These eggs were produced by New Hampshire, Barred Rock, White Leghorn, Rhode Island Red, and Dark Cornish hens. Only eggs of the Dark Cornish and Cornish crosses showed an appreciable degree of macroscopically detectable parthenogenesis.
14. Egg shell quality and shell membranes affect egg resistance to microbes. Studies of egg shells demonstrate that the shell membrane retards passage of bacteria into the egg. Shells with the membranes removed consistently permitted entry of more bacteria and in less time than shells with membranes intact. Apparently shell membranes serve as a physical barrier to entrance of bacteria, since previous studies have shown them to have no bactericidal action against several types of spoilage organisms.

Studies also were made on the relation of shell quality to bacterial infection of eggs using green rot as an agent. Greater shell porosity was found to be associated with a higher incidence of infection and higher bacterial counts in eggs infected artificially with known concentrations of a fluorescent, pigment-producing strain of Pseudomonas. Shells were also measured for thickness and percent of total egg weight, but only porosity showed a consistent relationship to infection.

#### Animal Disease and Parasite Research

15. Progress made in search for intermediate host of fringed tapeworm. Larvae of the fringed tapeworm of sheep undergo development in a very small wingless insect belonging to the family commonly called "book lice". This finding was made during research conducted in cooperation with the New Mexico and Wyoming experiment stations. The insect occurs on western range pastures, and readily eats egg capsules of the tapeworm. Larvae observed 21 days after being ingested by the insect were active and had increased in size and structural complexity. This is the first encouraging observation to be reported during 10 years of intensive search for the intermediate host and mode of transmission of the tapeworm.
16. Blue tongue virus adapted to tissue culture. Successful application of the tissue culture method to the production of blue tongue virus has resulted in approximately 10,000 times more virus than was previously possible from chicken embryos or suckling mice, or from experimentally or naturally infected sheep. This is extremely important since it makes possible a more rapid, successful and less costly diagnostic laboratory test. Previously reliable diagnostic tests could be made only in sheep.
17. Tissue culture techniques applied to hog cholera virus. Application of the tissue culture method has also resulted in a procedure for hog cholera virus whereby the resultant virus is reduced in virulence so much that it usually produces minimal reactions and subsequent immunity. It is also possible to restore normal virulence by altering the tissue culture procedure. Similar, but not quite so marked results have been noted with variant hog cholera virus. This research may result in explaining changes in the character of hog cholera virus which occur in nature; in a reduction in the large number of hogs presently required for hog cholera investigations; and in new methods for study of the modification of hog cholera virus for immunizing.
18. Eye cancer of cattle studied. Over 700 cases of cancer of the eye of cattle have been studied and their more distinctive patterns of growth and detailed microscopic appearance described. This has established a basis for classification and a more scientific approach to proper surgical treatment. The work shows that this cancer spreads through the lymphatic system and does not spread to other parts of the body until after a long period of progressive growth.



19. Tumors in cattle, sheep, and swine studied, classified and typed. Detailed work on more than 1,000 tumors in these animals have revealed several important facts. Malignant lymphoma was found to be a comparatively frequent cause of death in calves. Many pigs in a herd develop malignant melanoma and die before they reach market age. The majority of the tumors of sheep, cattle, and swine which result in their early death, are of the lymphoid and myeloid types. Basic fundamental pathologic studies were made which show that many cancers of the lungs and other organs in cattle develop as secondary ones from primary cancer of the uterus.
20. Dusting proves superior to dipping for destroying sheep keds. A commercial dust containing 1.5% dieldrin dust was tested on a large scale to evaluate the efficiency of both the method and formulation against sheep keds, sometimes called ticks. Some 13,128 ewes and lambs at 4 locations in New Mexico were treated. The formulation was 90 to 95% efficient by a single treatment, and there is little doubt that two treatments 21 days apart would achieve eradication. One owner reported that he had examined 690 lambs for keds about a month after treatment, and found only one ked. This regimen, therefore is presumed to be as efficient as dipping, more efficient than spraying, and is cheaper, faster, simpler, and safer than either dipping or spraying. Three thousand sheep can be easily treated in one hour.
21. Research on foot-and-mouth disease progresses. By means of highspeed, zone centrifugation, one strain of foot-and-mouth disease virus has been further purified into two components--a larger particle representing mostly the specific and infective portion, and a smaller particle that is mainly concerned in serologic tests. A heat-resistant variant of one strain of foot-and-mouth disease virus has been separated from heated tissue cultures and propagated as a distinct entity.
22. Satisfactory treatment of phosphate insecticide poisoning found. A new treatment for organic phosphate insecticide poisoning has been tried out successfully on cattle and sheep. It consists of the injection of a combination of 2-pyridine aldioxime methiodide and atropine sulphate. The cholinesterase activity of normal blood of cattle and sheep also has been determined so as to diagnose poisoning by the large group of organic phosphorus cholinesterase inhibitors. The mean value was determined for 253 samples of cattle red blood cells and for 183 samples from sheep. The need for this work is emphasized by the wide use of these compounds as insecticides.
23. Dimethoate effective against nose bots of sheep. Dimethoate, a systemic organophosphate parasiticide was administered intramuscularly at a rate of 25 milligrams per kilogram of body weight. Data on 60 infested sheep, 31 treated and 29 untreated, revealed an efficiency of 98% against first instar grubs, 97% against second instars, and 92% against third instars, with an overall kill of 97%. No toxicity from the drug occurred in any of the treated animals. Compared to previous experience with ET-57, a related systemic, the present results are more effective against second and third instars. ET-57 was about as effective as dimethoate against first instars, but showed no notable action against older instars. Dimethoate has not been released on the market, nor is its general use yet recommended.



24. Wild carrot, *Cymopterus watsonii*, proved toxic for sheep. This is the first knowledge that this plant is toxic. It produces a photo-sensitization which results in an inflamed condition of the woolless parts of the body. A common ~~noninfectious, nontransmissible~~ condition seen in sheep on some ranges, with affections of the muzzle, udder, and external genitals, may be due to this plant.
25. Coccidiosis of lambs on winter range causes severe losses in production. In a flock of 250 lambs in Utah, more than 200 were seriously affected by coccidiosis and 6 died. The total weight lost by survivors amounted to more than 2000 pounds and was not regained. The outbreak occurred in September 1957 about 10 days after the animals were moved from summer to winter range. Sheep on uncrowded summer range generally harbor light infections of coccidia, which can pyramid with serious consequences under more crowded conditions, such as may exist on winter ranges or in feed lots.
26. Two sulfonamide drugs effective as treatments for bovine coccidiosis. Under conditions of artificial exposure to bovine coccidiosis that caused mortality in 3 of 4 untreated calves and severe illness and stunting of the survivors, no illness occurred in calves that were given either sulfabromomethazine or sulfamethazine. Dosage was at the rate of 0.15 grains per pound of body weight on alternate days beginning on the tenth day after exposure. Five doses were used in all.
27. Blackhead of turkeys studied. The microscopic parasite that causes blackheads of turkeys has lived more than  $2\frac{1}{2}$  years in soil, when enclosed in eggs of the poultry cecal worm. This parasite is fragile and does not survive long on soil unless inside the egg of the worm. It becomes enclosed in the worm egg while still in the intestine of the affected bird. Poultry acquire cecal worms and, at the same time, blackhead by swallowing these eggs along with feed and water. This finding may explain outbreaks of blackhead in turkeys on premises that have been unused for long periods of time.
28. Glycarbylamide effective against cecal coccidiosis in chickens. In comparative trials of glycarbylamide and 5 other currently popular coccidiostats (nicarbazin, nitrofurazone, Bifuran<sup>R</sup>, Trithiadol<sup>R</sup>, and sulfaquinoxaline) glycarbylamine effectively prevented morbidity and mortality in chickens exposed to coccidiosis and did not depress rate of gain. From these preliminary trials, the materials tested seem to rank in about the order named with respect to over-all efficiency and safety. Although many coccidiostats have been studied extensively, there are few comparative evaluations of this kind.
29. Recovered animals may be reservoirs of disease-causing virus. The observation that recovered animals may be important reservoirs of disease causing virus was made in research on serological techniques presently used for the diagnosis and measurement of levels of specific antibody of vesicular stomatitis in cattle, horses, and swine, and vesicular exanthema in swine. It is based on information from a series of serum samples collected over long periods from each animal.

The general pattern of antibody levels observed on serial bleedings has been an initial high level followed by a gradual decline. The recent finding of a subsequent significant rise in antibody level some months later in many of the animals recovered from both diseases not only indicates that the virus is still present in the animal but also indicated renewed virus multiplication. Application of this information to other infectious diseases is most important as it might be a means of uncovering additional reservoirs of diseases of both man and animals and permit the initiation of more effective control.

#### Crops Research

30. Resistance to soybean cyst nematode found in 4 selections. The soybean cyst nematode is a serious hazard to production of high quality soybeans, and is known to be causing crop losses in 22 counties in 7 Southern States where most of the crop is grown for export. In 1957, during an evaluation of the entire soybean germ plasm collection, researchers found 4 selections of soybeans resistant to the cyst nematode. While none of them is suited for commercial production all have been crossed to adapted varieties. The discovery of only 4 resistant selections among more than 3,000 breeding lines tested, demonstrates the scarcity of resistant types. Work on resistant varieties is continuing.
31. Resistance to hoja blanca virus disease of rice found. Approximately 3500 varieties and selections of rice were tested in Cuba and Venezuela for reaction to hoja blanca, a virus disease. All of the leading American varieties were found to be susceptible. Minor varieties with short and medium grain, such as Colusa, Lacrosse, Missouri R-500, and Asahi are resistant, and Arkrose is moderately resistant. Although none of the American long-grain varieties is resistant some of the selections of this type appeared to be segregating for reaction to hoja blanca. A number of introduced short-grain varieties are resistant as well as several short- and medium-grain selections. The source of resistance appeared to be from the short-grain types used as one of the parents in the crosses from which these lines were selected. A few introduced long-grain varieties were found to be resistant or moderately resistant but these are not adapted in this country.
32. Resistance to dangerous new races of crown rust found. Five new races of crown rust, first discovered in 1953 and present in epidemic amounts in Florida in 1957, are a serious threat to the oat crops of the U. S. and Canada. No commercial variety of oats is known to be resistant to these "landhafer-attacking" races, and all varieties that have been used in breeding for resistance to older races likewise are susceptible to the new races. In greenhouse tests no seedling resistance was found among the cultivated oats in the World Oat Collection. Available resistance among the wild species is very difficult to use in breeding for resistance because of a difference in chromosome number.



A cooperative rust nursery, consisting of the Department's World Oat Collection and experimental entries from many States, was grown in Puerto Rico during the winter of 1957-58. It was artificially inoculated with race 264, the most dangerous of the new races. A total of 36 strains having outstanding adult resistance to race 264 was found, including 11 cultivated varieties with apparently different basic sources of resistance. Also, some very promising resistant derivatives from crosses involving these sources were found among the experimental entries. While it is doubtful if any of these resistant strains are potential new varieties, they should be of great value in the breeding of resistant varieties.

33. New chemical proves effective in control of wheat bunt. Bunt has ceased to be a serious problem in wheat except in 6 Pacific Northwest States. New resistant varieties and new seed treatment chemicals have reduced losses everywhere. The new chemical, hexachlorobenzene, controls seed- and soil-borne common bunt in the Pacific Northwest far better than any substance available heretofore. In a recent 5-State test at 9 locations, untreated check plots were 80% smutted in contrast to about 3% smut where seed was treated with hexachlorobenzene. The common mercurial seed treatments were effective in the control of seed-borne bunt but were inadequate in control of soil-borne bunt.
34. Diagnostic chemical test for exocortis virus in citrus developed. A laboratory diagnostic test for the presence of exocortis virus in citrus has been developed in Florida. This color test, which employs aldehyde coupling reagents, is diagnostic for the virus in trees infected for  $1\frac{1}{2}$  years or more. The test is of great value for identifying exocortis-free budwood sources used in the propagation of citrus trees. Previously, the only test for this virus was to inoculate susceptible stocks and wait 4 to 8 years for symptom development.
35. Root-knot resistance transferred to breeding lines of tobacco. Root-knot resistant tobacco plants with good yield and type have been obtained by crossing highly resistant plants derived from a TI 706 introduction from Honduras with a cross between two tobacco species, Nicotiana sylvestris x. N. tomentosiformis. The two latter tobacco relatives appear to be the progenitors of cultivated tobacco, thereby making a 3-way crossing possible. This accomplishment has come after 20 years of unsuccessful attempts to use the root-knot resistant factor identified in TI 706 from which all former progeny crosses resulted in an unsatisfactory type of tobacco with small leaves and low yields. Tests for yield and quality of advanced resistant breeding lines are in progress and it is expected that the root-knot resistant factor can be incorporated in good tobacco varieties as soon as they can be selected for local adaptation. Work is continuing in cooperation with the State agricultural experiment stations.



36. Mode of action of three groups of herbicidal chemicals determined.

Through basic research, significant progress has been made in understanding the action mechanisms of 3 important groups of herbicidal chemicals. Important break-throughs indicate that certain herbicidal chemicals interfere with the first step in photosynthesis, the process by which plants manufacture their own sources of food. The substituted phenylureas and a group of triazine compounds typified by simazin, were found to be highly inhibitory to that portion of photosynthesis concerned with the absorption of light by plants and ultimate synthesis of carbohydrates within plants. Studies with intact plants confirmed these findings when research showed that the death of barley plants caused by the herbicide simazin could be prevented by supplying carbohydrates to barley plants through their leaves.

Additional investigations on the herbicidal action of 2,2-dichloropropionic acid (dalapon), a herbicide widely used for control of grasses, showed that this chemical prevents the synthesis of pantothenic acid, one of the B-vitamins essential to the growth of living organisms. Further studies showed this to be a major site of herbicidal action but that other sites are probably involved in the total herbicidal action of the compound. Research information of this type will be useful in the synthesis of improved herbicides, more efficient use of herbicides currently available, and in understanding the relationship between structure and herbicidal activity.

37. Chemical spray controls top growth of plants. An organic chemical applied to plants has been found that induces short, thick stems, dark green leaves, and prolongs the life of some kinds of plants. This discovery in 1952 stimulated commercial interest in chemically-induced dwarfism, particularly in ornamentals where excessive vegetative growth is often undesirable. The chemical--(4-hydroxy-5-isopropyl-2-methylphenyl) trimethylammonium chloride, 1-piperidine carboxylate--has been designated Amo-1618. With it, the height of many kinds of plants can be regulated by varying degrees depending upon the dosage applied. Seeds obtained from the treated plants develop into dwarfed offspring, but this effect is lost after the second or third generation.

38. Chemical route to cotton hybrids discovered. In cooperative studies with the Texas Experiment Station, a new chemical treatment has been discovered which promises to open the way for producing hybrid cottons and improving quality of this and possibly other crops. The chemical (sodium alpha, beta-dichloroisobutyrate), when sprayed on cotton, prevents pollen development in some varieties without harming pistillate parts of the plant. The resulting male-sterile flowers are still capable of setting seed but only when pollen is introduced from other plants. Preliminary field studies across the Cotton Belt have shown that it is possible to grow two varieties side by side, the one treated with the chemical and the other not, and have only hybrid seed produced by the treated plants. Much is

to be learned about treatment specifications and varietal combining abilities, but the way may now be open for eventual field scale production of hybrid cotton.

39. Rapid tests for alkaloids speed selection of new tobacco hybrids. The kinds and amount of alkaloids in tobacco leaf is a most important quality factor. Some unfavorable kinds occur or increase in some plants after the plant reaches maturity. Recent studies show that changes from desirable to undesirable alkaloids in tobacco can be detected in the small dried leaves at the base of seedling plants. This permits use of the information in making crosses on field grown plants, or in screening of greenhouse seedlings for this important quality factor, at a time when the plant still has the capacity to produce seed rather than waiting to follow up quality determinations on the cured leaf, nearly a year later. This should halve the time required to eliminate undesirable plants from otherwise desirable breeding lines.
40. Basic inheritance studies expedite selection in sugarcane. Basic studies on the inheritance of plant characters in sugarcane have shown a close association between the sucrose content of seedling plants and that of their vegetative progenies in succeeding years. There is also a high correlation between the stalk diameter of the seedling cane and their vegetative progenies. On the other hand, such characteristics as erectness of stalks and number of stalks per plant are not highly correlated with succeeding populations which are vegetatively propagated. These findings, among the first published on this subject, will be extremely helpful in indicating those characters which can be used most effectively in early selection for the improvement of sugarcane. This is unusually important because selection is extremely difficult in this crop with its tall, tangled growth, and because quality factors such as sucrose content and millability enter into the final product.
41. New vegetables, fruits, and ornamentals released. Two new white-skinned potato varieties, Norgleam and Nordak, and 1 new red-skinned variety, Norland, have been released in cooperation with the North Dakota Experiment Station. All 3 are especially adapted to the Red River Valley of the North, all make good chips after storage, and Norland makes good chips before storage as well. Norgleam and Nordak are resistant to virus Y, but Norland is not resistant.

A new male-sterile onion inbred, Ia 736, has been released in cooperation with the Iowa Experiment Station for use in producing commercial hybrid onion seed. It has superior combining ability and imparts dark yellow skin color and earliness to the hybrids of which it is a parent. It is a yellow globe, firm-fleshed, pungent type for late crop storage. It will be used as the female parent.

Sanilac, a white pea bean, has been released in cooperation with the Michigan Experiment Station. It is superior to the commercially grown Michelite because of resistance to anthracnose as well as to mosaic. It performs well on rich soils but not on poor ones.



Two lima beans have been released. Nemagreen was developed with the Oklahoma and Virginia Experiment Stations. It is highly resistant to root knot nematodes. Thaxter, developed by the Department, is the first downy mildew-resistant lima bean to be produced. Downy mildew, a fungus disease, is a major limiting factor in the lima bean processing districts of the Middle Atlantic States. The variety is of the small, green-seeded type.

Golden State A and Golden State B are two new head lettuces released in cooperation with the California Experiment Station. These very large, dark green, slow-bolting, tip burn-resistant varieties appear best adapted to coastal California.

One new spinach variety and two new hybrids were released in cooperation with the Texas Experiment Station. Dixie Market is a fast-growing, high-yielding, early-bolting savoy spinach, highly resistant to blue mold and mosaic, and suited to winter culture in the South. Hybrid 424 and Hybrid 525 are fast-growing, high-yielding, blue mold-resistant, flat-leaved types for processing in the South.

Two new apricots were released jointly with the Washington Experiment Station. Earliril is outstanding for earliness and hardiness. Blenril has excellent texture, firmness, and quality when canned.

Selection through three generations of tetraploid Easter lilies has produced seedling clones with more flowers than either diploids or the original colchicine-induced tetraploids. Three of the best, Tetra-1, Tetra-2, and Tetra-3, have been released by the Department for commercial production. These produce very sturdy, strong-stemmed plants with large flowers of good substance.

42. Two new sideoats grama varieties developed for the central Great Plains. Two varieties of sideoats grama, Butte and Trailway, have been developed at Lincoln, Nebraska, in cooperation with the Nebraska Experiment Station and the Soil Conservation Service. They were selected for persistence, maturity, seed yield, and forage production. Butte is an early maturing variety best adapted to areas with relatively short growing seasons. It exhibits excellent seedling vigor, matures seed before frost in western Nebraska, and will be recommended in the north central and western districts. Trailway is a long-lived, late-maturing variety that will be recommended for upland plantings in the eastern and southern districts. It requires most of the growing season to mature seed in eastern Nebraska, and may fail to produce seed crops in regions having a shorter growing season.
43. Two new disease-resistant flax varieties released. Two new disease-resistant flax varieties developed in cooperative programs in Minnesota and California will soon be available to growers. Army, a rust- and wilt-resistant variety adapted to the North Central States, is immune to prevalent races of flax rust, and has a factor for resistance to other known races of rust that is not contained in other late varieties. It has more wilt resistance and is less susceptible to pasmo, a fungus disease of flax, than any of the varieties it is



expected to replace. New River, a high-yielding variety resistant to fusarium wilt disease, is ready for release to growers in California and Arizona. In addition to wilt resistance and acceptable yield, the seed of New River has higher oil content and slightly higher iodine value than varieties now being grown. The release of New River should reduce substantially the disease losses suffered by flax growers in the Southwestern States.

44. Improved variety of sweet sorghum for Southern California released. A new variety of sweet sorghum, named Brawley, was released for commercial culture by the Department and the California Experiment Station in April 1958. Because of its early maturity, Brawley can produce two crops annually from one planting in the Imperial Valley. When two crops are harvested annually, it produces approximately 50 tons of forage per acre. A special advantage of Brawley is its ability to resist lodging with these high yields under normal field conditions. Stalks of Brawley are fairly juicy, and the juice has a higher sucrose content than any current commercial variety.
45. Plant introductions may be new sources of protein, oils, and fiber. The program for intensive screening of plant materials initiated in 1957 has produced leads for potential new crops. Among the first 700 accessions analyzed for new sources of seed protein, more than one-third revealed 30% or more protein content. Many other introductions tested have 20% or higher oil content, and still others carry potentially valuable characteristics. Analytical studies to locate plants suitable for pulping have initially indicated that kenaf hemp and sunn-hemp (Crotalaria juncea) are promising.
46. Recent progress made at the National Arboretum. Construction of roads, one of the largest single items of National Arboretum development, was completed in September 1958. The stream and pond stabilization program was 60% completed by that date. One new storage unit has been added to the service court for temporary use in housing a portion of the herbarium. Several new planting areas have been developed, and 1,000 feet of additional access trails have been constructed.

Plantings include the addition of 1,200 azaleas in 400 clones in a special test area and 460 camellias, with representatives of many other genera. The National Arboretum herbarium has been given the C. R. Ball willow collection, comprising 25,000 mounted sheets and several hundred books and pamphlets representing one of the finest private salix herbaria in existence.

Research continues on improved propagation methods for deciduous azaleas employing cold treatments to rooted cuttings, followed by illumination to promote subsequent growth. Numerous interspecific, intraspecific, and backcross combinations have been made in the continuing breeding program in Ilex and Magnolia.

Entomology Research

47. Superior protectant spray for animals developed. A new highly effective compound known as Bayer 21/199 sprayed on livestock destroys screwworms in wounds on animals and prevents reinfestation for a week or more. This technique is important in the quarantine program associated with screwworm eradication and will be of great value to the livestock industry in Texas and other Southwestern States where eradication is not feasible. The compound has also been found highly effective in the control of lice, ticks, flies, and cattle grubs affecting livestock.
48. Progress made on insecticides for control of resistant boll weevils. Sevin, a new carbamate compound, may prove to be extremely useful in the control of resistant boll weevils. It is also one of the safer insecticides and may be useful for the control of several other cotton insects, such as bollworm, pink bollworm, thrips, cotton fleahopper, and cotton leafworm.

Laboratory and field tests show that a 2 to 1 combination of toxaphene and DDT is considerably more effective than toxaphene alone against resistant boll weevils. DDT is ordinarily not considered to be effective against the boll weevil, and the determination that the combination is more effective than toxaphene alone is highly significant. This research indicates that in some instances combinations of insecticides may be helpful when insect pests are resistant to certain materials.

49. Parasites and predators help control important crop pests. Three species of parasites introduced from abroad to help control the spotted alfalfa aphid have now become well established in the Southwest. These introduced parasites, together with native lady beetle predators, are helping to reduce damage to alfalfa.

Effective control of the citrus black fly is being provided by three species of parasites that have been introduced successfully into Mexico in all areas where they have become established. These introduced natural enemies have lessened considerably the possibility of black fly-infested plant material gaining access into this country.

50. Advances made in selection of plants for resistance to insects. The cooperative selection program has shown that wheats with 14 and 28 chromosomes are more resistant to the wheat stem sawfly than those with 42 chromosomes. Sawfly resistance in the lower chromosome wheats is more stable under varying environmental conditions than in the higher chromosome wheats. Resistance to sawfly oviposition and resistance to larval development within the stem is apparently present.

The cooperative selection program in Africa alfalfa has provided several plants resistant to spotted alfalfa aphid. From these selections certain clones superior in disease resistance and agronomic characteristics also showed an adverse effect on spotted



alfalfa aphid reproduction and survival in laboratory and field tests. Using 9 of these resistant clones, a non-dormant synthetic variety, Moapa (formerly called Nevada Synthetic M), was developed. Seedling groups and mature plants studied in cage tests under a very severe spotted alfalfa aphid infestation showed Moapa approximately equal to Lahontan in resistance to the insect. Recovery of Moapa after aphid attack was more rapid than in Lahontan or Africa. Its superiority over Africa in this respect was evident at all plant ages.

51. New insect repellent favorably received by the public. Intensive research on insect repellents for use against numerous insects affecting man has lead to the development of a superior repellent known as diethyltoluamide. This repellent is effective against the entire range of mosquitoes, biting flies, ticks, fleas, and chiggers, instead of against only a few species. Research has shown it to be effective and safe for use on both skin and clothing. The material has unusual resistance to loss from the skin by rubbing and sweating and is cosmetically acceptable. During the past two years manufacturers have produced millions of units for distribution, and the new repellent has received wide public acceptance.
52. Leafhopper damage to sugar beets reduced by treatment with systemic. Experiments in Arizona indicate that the systemic insecticide, Thimet, applied to seed or to soil prior to planting of sugar beets reduces beet leafhopper infestation in the early stages of plant development and reduces damage from the curly top disease that this insect transmits. As a result of this research Thimet-treated seed was used for practically the entire planting of sugar beet seed acreage in Arizona in August 1957. Good leafhopper and curly top control resulted. The beet leafhopper is the only known vector of the curly top disease, and many varieties of sugar beets are susceptible to it, particularly in the early stages of plant growth.
53. Important new control for aphids on potato recommended. The new insecticide, Thiodan, was recommended in 1958 for use on potatoes to control the green peach aphid which is the vector of the destructive leafroll disease, following cooperative studies with Oregon and Washington. Thiodan appears to kill as a fumigant although many of the aphids are not killed for two or three days. It was the only insecticide tested which, when applied by aircraft, was effective against the parathion-resistant green peach aphid. In recent years this aphid has been a serious problem to potato growers in the Pacific Northwest.
54. New synthetic fruit fly attractants investigated. The synthesis and testing of compounds as insect attractants is turning up new materials of value as fruit fly lures for use in control programs. Among these is an extract of the foliage of a South American plant know locally as "pichi" which has proved attractive to the melon fly. Chemical studies have yielded separate fractions of the extract which are attractive specifically to the male and female melon flies.



In recent tests with about 4,000 compounds screened against fruit flies, more than 80 Mediterranean fruit fly attractants, more than 70 oriental fruit fly attractants, and several additional melon fly lures proved worthy of further study. As a result of extensive field tests, siglure (a trans form of sec.-butyl ester of 2-methyl-4-cyclohexene carboxylic acid) and anisyl acetone are now widely used as attractants in fruit fly detection campaigns.

#### Soil and Water Conservation Research

55. Method developed for measuring plant suction. A method for measuring the suction plants require to take in water from soil, developed at the U. S. Salinity Laboratory, is the outcome of more than 20 years research and fills a long standing need. It is expected to have numerous applications in both basic research and commercial agriculture. For the first time direct and reliable values for soil suction can be measured to determine the suction a plant must exert to take in water. The physical forces associated with the attraction of soil for surface films of water, plus those associated with solute particles, contribute to a water-binding action and determine the suction the plant root must develop to absorb water from soil. A method has been developed to measure these forces which is based on the difference in temperature between wet and dry-thermocouple junctions in a sample chamber.
56. Plastic film reduces evaporation from farm ponds and improves quality of water. Investigations at Logan, Utah, indicate that floating plastic films reduce evaporation losses from stock ponds and small farm reservoirs and improve the quality of the stored water. An 8-mil black polyethylene film, floated on the surface of a test pond 40 X 40 feet, reduced evaporation by 87% during a 1-month test period. The film was perforated with 1/4-inch holes on 1-foot centers to allow precipitation to pass through the film rather than ponding on the surface. The pond was lined with plastic film to control seepage. Evaporation from the covered pond averaged about one-seventh the evaporation from adjacent uncovered test ponds.

Floating plastic films also improve water quality through algae control. In a fish pond in Salt Lake County, Utah, a dense growth of algae was killing fish. On September 5, three weeks after a polyethylene film was floated over one-half of the pond, all aquatic growth under the cover had completely disappeared and the cover was moved to the other half of the pond. Two weeks later algae in that part of the pond were white and appeared dead. At the beginning of winter the water was clear and the pond free from rooted plants of all kinds. The cover was then moved to a larger pond and left in place throughout the winter. The pond did not freeze solid where the cover was located indicating that similar covers may assist in preventing winter kill of fish by allowing the escape of pond gases and providing for improved aeration.

57. Stage-discharge relationships for sand bed streams investigated. Investigations of streamflow in Pigeon Roost Creek near Oxford, Mississippi have shown heretofore undescribed features of the stage-discharge relationship for sand bed streams. As stream flow, or discharge, increases and the height of the water, or stage, approaches a specific level there is a rather abrupt falling of the stage with no change in discharge. On the recession side of the hydrograph, after the stage falls to the same specific height, the stage subsequently rises with no change in discharge. Preliminary studies of this unique phenomenon indicate that it is associated with a change in channel resistance and is not caused by a general change in elevation of the stream bed or synchronization of tributary flows. Such unusual features have been observed elsewhere, but this is the first opportunity for systematic investigations of the reasons for the occurrence. Though the presence of such fluctuations in the rating curves for these sand bed streams requires significantly more work to reduce the records of stage height to rates of discharge, this disclosure makes possible substantial refinement of estimates of stream discharge and rates of delivery of sediment.
58. Roadbank stabilization measures developed for Southeast. Unvegetated cut and fill slopes and drainage ditches along roads and highways in the Southern Piedmont region of Georgia and adjoining States contribute large amounts of sediment to streams and ponds, increase the cost of highway maintenance, and present an unsightly appearance. Studies initiated near Cartersville, Georgia, have demonstrated that the exposed subsoils require liberal applications of nitrogen, phosphate, potassium, and lime before vegetation of any sort can be established. Nitrogen and phosphorus particularly are limiting factors. First-year vegetation establishment studies indicate that the most promising cool-season grasses for roadside stabilization in the area are fescue, Oklahoma brome grass, and orchardgrass. The most promising summer grasses are common Bermuda and love grass, and the most promising plants with vine-like growth are honeysuckle and Kudzu. On the steeper cut slopes, mulching is essential for the establishment of vegetation. It is less important on the lesser slopes when these are seeded at optimum time and when soil moisture is adequate. Exposure or direction of slope has an important effect on the success or failure of establishing vegetation and has a marked effect on frost induced erosion. Where sparse stands of native vegetation has become established by natural processes, fertilizing and mulching produce some excellent covers without additional seeding.
59. Cement-kiln dust indicated as valuable liming material. More than a million tons of kiln dust are available annually in the U. S. as a waste from the manufacture of portland cement. Economical disposal of this dust (averaging about 80% of equivalent calcium carbonate and 4.5% of potash) is a troublesome problem at most plants, many of which are located in agriculturally important areas of acid soils. In greenhouse studies of their liming value, with alfalfa as the test crop, kiln dusts from several



sources compared favorably with equivalent applications of high-calcium limestone in neutralizing soil acidity and promoting plant growth. Work is in progress to determine the chemical nature and nutrient value of the potash and to improve the physical character of the dust for handling and application.

60. Phosphate fertilizers supply trace elements for plant nutrition.

Soil deficiencies in the trace nutrients are being observed increasingly in agricultural areas throughout the country. Studies of commercial phosphate rock from domestic deposits show the presence of small quantities of certain of these elements -- ranging for manganese from 25 to 2120 parts per million, zinc 4 to 1045, copper 1 to 394, and molybdenum 1 to 58--with the largest amounts of zinc, copper, and molybdenum in rock from Idaho, Montana, Utah, and Wyoming. Additional quantities of the elements are often supplied by the sulfuric acid used in processing the rock into superphosphates, ammonium phosphates, and other fertilizers, and the quantities of the elements carried as incidental constituents of such fertilizers may contribute substantially to crop needs. Thus, the amount of zinc in western-made superphosphate is sufficient to supply the requirement for this element by crops on zinc-deficient soil.

61. New conservation benching system developed for semi-arid areas. In 1955, 4 conservation benches were installed at the Southwestern Great Plains Field Station, Bushland, Texas, as a new land forming approach to conservation and use of runoff water in semi-arid and arid areas. Each bench system consists of a level contour bench with a terrace ridge for retaining water on the downslope side and a non-leveled area upslope from the bench. Runoff water from the non-leveled "contributing" area is impounded and infiltrated on the level bench to supplement the natural supply. The benches installed are about 100 feet wide and 900 to 1,100 feet long with a 2 to 1 ratio of contributing area to bench. Valuable information was obtained in evaluation of these systems during 1957. Marked differences in growth occurred on the cut, center, and fill portions of the conservation benches. Yields of sorghum grown were as follows:

<u>Bench area</u>	<u>Grain (bushels)</u>	<u>Silage (tons)</u>
Cut portion .....	60	8.7
Center portion .....	74	10.6
Fill portion .....	106	15.7
Average .....	75	11.7
Runoff contributing area ....	40	- -

Stored soil moisture at seeding date was about 7.6 inches on the bench and 2.7 inches on the runoff contributing area. No differences in stored soil moisture were noted at seeding date in cut, center, and fill portions of the bench area.



Sorghum yields on the conservation bench were increased approximately 5.6 bushels per acre per inch of stored soil moisture at seeding time. Engineering studies showed seeding date moisture storage was reduced approximately 1 inch and yield was reduced approximately 8.8 bushels per acre for each 0.1 foot deviation from mean elevation. This system holds real promise as a moisture conservation method in semi-arid areas where topographic and soil conditions are suitable.

62. Soil surface treatment to control evaporation indicates savings in water. An exploratory study of evaporation from the soil surface of corn land and transpiration from the corn plants has provided new knowledge of the interrelationships between evaporation, transpiration, soil moisture depletion, and percolation. The study, carried out near Coshocton, Ohio, involved use of lysimeters, two with the ground surfaces covered with plastic sheets during the period of June 6 to September 9, and one with the ground surface exposed. One of the covered lysimeters had water added in an amount equal to the net supply from rainfall, the other covered lysimeter received no water after covering. Percolation for the season was increased to 5.3 inches when normal amounts of infiltration water were added to the covered lysimeter, as compared to 3.1 inches for the uncovered lysimeter. Estimated evaporation from the ground surface and measured transpiration from the corn plants was in ratio of 45 to 55. The rates of both evaporation and transpiration increased from the beginning of the season, reached a peak in July and then receded to a low value in September. Of the water available for use in the covered lysimeter with no water added, about 7 inches of water was saved for use by the corn plants through reducing evaporation from the ground surface. The yield of the covered lysimeter with no water added was 125 bushels per acre, that of the covered lysimeter with normal amount of infiltration water added was 182 bushels per acre, and that of the uncovered lysimeter was 169 bushels per acre. The results indicate the possible degree to which surface treatment, by reducing evaporation, may effect savings in water for use in recharging groundwater or for more efficient crop production. It has direct application in predicting soil moisture depletion as it affects the rainfall-runoff relationship and streamflow on agricultural watersheds.
63. Bacterial-induced chlorosis discovered. Research was continued on the problem of bacterial-induced chlorosis in soybeans. Apparently this condition is widespread. It has been found on soybeans in North Carolina, Mississippi, Ohio, and Indiana. In most cases, soybeans will recover within two or three weeks although yields may be considerably lower than when soybeans are inoculated with known nonchlorotic producing strains of soybean bacteria. The severity of chlorosis is associated with light intensity, substrate in which the plants are grown, and the nutrition of the plant.

Cell-free extracts from root nodules from chlorotic plants have produced chlorosis in seedlings of sorghum, sesame, onions, crabgrass,

rice, zinnias, and tomatoes. The chlorosis-producing substance is not destroyed by freezing, drying, or moderate heating. Preliminary results indicate that it is formed early in the nodules and increases as the plants grow older. Grafting of tops of resistant plants onto the roots of susceptible plants, and vice versa, have demonstrated that resistance is conditioned by the rootstocks. There is an interaction between the chlorosis-inducing Rhizobium strains and soybean varieties. Some strains will produce chlorosis on Lee but not on Hawkeye, some affect Hawkeye and not Lee, other strains will produce chlorosis on both of these varieties. Still other strains will not work on either of these but will affect other varieties.

64. Soil acidity found to limit root growth. The effect of subsoil fertility upon rooting depth of Sudan grass and soybeans was evaluated in Pennsylvania. On an Allenwood soil, root growth was decreased by subsoil fertilization. However, preliminary investigations revealed that detrimental effects were limited to acid-forming fertilizer materials. As soil pH was raised through lime additions, uptake of aluminum, manganese, boron, magnesium and potassium was reduced. There were indications that aluminum and manganese toxicity at the low pH levels is the primary cause of poor root growth in the subsoil. Results from this study are of critical importance to areas where subsoil acidity is increasing rapidly as a result of application of nitrogen fertilizers.
65. Methods for reducing irrigation labor developed in Alabama. Methods for increasing efficiency and cutting labor requirements of irrigation show real promise. In Alabama, labor requirements for sprinkler irrigation of cotton and corn were reduced from 1.5 man hours per acre per irrigation for a conventional rectangular layout to only 1.0 man hour by using a branched lateral system using flexible plastic branches 1 inch in diameter and 80 feet long. The flexible branch allows the irrigator to move each sprinkler head to a new location 3 times before moving the main. Labor requirements were further reduced to 0.4 man hours per acre per irrigation by replacing the hand-moved aluminum laterals with a flexible lateral system that could be moved mechanically. The useful life of the flexible laterals and branches are being evaluated.

#### Farm Economics Research

66. Net farm income slightly higher in 1957 and 1958. Net farm incomes were higher in 1957 than in 1956 on 20 of the 31 types of commercial farms for which annual estimates of costs and returns are now available (table 1). Changes in net farm incomes between 1956 and 1957 were largely the result of changes in crop yields and price relationships. In general, weather was more favorable to farmers in the Southwest, Great Plains, and western Corn Belt in 1957 than it was a year earlier. Prices received for farm products were, in general, higher on wheat, dairy and other livestock farms but lower on poultry and cotton farms.



The value of these series has increased substantially as data for additional years have become available and as the number of situations covered has grown. Data for dairy-hog farms in southeastern Minnesota and poultry farms in New Jersey were published for the first time in 1958.

The new series on egg producing farms in New Jersey illustrates the fact that frequently consumers rather than farmers benefit during a period of rapid and widespread increases in the production efficiency and production of a particular product. Since 1947-49 these poultry farms have increased net production by more than 50%. They have increased their output per hour of labor by 53% and have reduced their per unit costs of production by 12%; yet their net farm incomes have averaged only \$1,705 in the last 4 years as against \$5,976 in 1947-49. Prices received on these poultry farms in 1954-57 were 27% below the 1947-49 average. (Figure 1)

Preliminary estimates of net returns for 1958 for 6 of the farm-types showed greater incomes in 1958 than in 1957 on all farm-types. They ranged from 15% to 20% higher on dairy and cotton farms to around 50% higher on winter wheat farms and cattle ranches. The 1958 returns on poultry (egg producing) farms were double the 1957 returns.

67. New record farm output in 1958. Unprecedented production of livestock and crops resulted in new records in 1958. Total farm output was more than 9% greater than the previous record set in 1956 and 1957. Weather conditions throughout most of the country were unusually favorable for agricultural production in 1958.

Total crop production increased 11% compared to 1957. This was the largest year to year change in over a decade. Output of food grains, feed grains, and oil crops were at new record levels. Only hay and forage, and sugar crops failed to register production increases. The total acreage used for crops, at 94% of the 1947-49 average, was the smallest in four decades. But crop production per acre increased 13% from 1957 and was 26% above 1947-49. (Figure 2)

Total livestock production in 1958 was more than 2% greater than in 1957 and 24% greater than in 1947-49. The number of animal breeding units decreased slightly but production per breeding unit increased 3% from 1957 to a new record level. Production of meat animals and poultry products increased from 1957 to 1958, but production of dairy products showed no change.

68. Market value of farm real estate advanced 6 percent in the year ended November 1, 1958 to a new record of \$121.5 billion. Although this increase was a little less than in the preceding 12 months, it was the second largest increase since November 1950 when the Korean outbreak sparked a near-record advance of 14% in the following 12 months. In the latest 12-months period, values increased 3%



TABLE I  
Net farm income, commercial farms, by type and  
location, 1957, with comparisons

Type and location of farm	Average		1954	1955	1956	1957 1/
	1937-41	1947-49				
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Dairy farms:						
Central Northeast....	960	3,892	3,735	4,248	4,179	5,095
Eastern Wisconsin....	1,480	4,365	3,219	2,816	3,456	3,806
Western Wisconsin....	1,236	3,284	2,382	2,434	2,978	3,373
Dairy-hog farms:						
Southeastern Minnesota	1,217	3,867	3,453	3,427	3,926	4,029
Corn Belt farms:						
Hog-dairy .....	1,642	5,639	6,419	4,419	5,108	6,198
Hog-beef raising....	928	3,370	2,945	3,016	3,169	4,093
Hog-beef fattening...	2,520	10,665	8,833	4,433	6,899	8,116
Cash grain.....	2,627	8,930	8,551	6,737	9,382	7,036
Tobacco farms:						
Tobacco livestock (Kentucky).....	1,192	3,334	3,439	2,850	3,200	2,873
Tobacco-cotton (North Carolina)....	- -	3,208	2,927	3,550	3,674	2,290
Small tobacco.....	- -	2,354	2,380	2,885	2,970	2,021
Large tobacco-cotton	- -	3,923	3,326	4,463	4,944	2,779
Cotton farms:						
Southern Piedmont....	495	1,565	1,438	2,297	1,570	1,734
Black Prairie, Texas.	1,019	3,090	1,768	2,572	903	1,900
High Plains, Texas (nonirrigated).....	1,675	6,411	4,499	2,544	2,526	7,106
High Plains, Texas (irrigated).....	- -	10,761	12,924	7,039	12,594	12,001
Delta:						
Small.....	- -	1,923	1,581	2,033	1,714	1,205
Large-scale.....	- -	20,465	16,943	25,921	19,764	12,287
Peanut-cotton farms,						
Southern Coastal Plains:	- -	2,313	2,231	3,192	2,901	2,566
Spring wheat farms:						
(Northern Plains):						
Wheat-small grain- livestock.....	872	6,323	2,133	6,090	6,930	3,776
Wheat-corn-livestock.	1,127	5,972	3,397	2,547	3,278	5,066
Wheat-roughage-livestock:	533	5,370	2,813	4,259	2,899	4,404
Winter wheat farms:						
Wheat, Southern Plains	1,174	10,016	7,240	4,914	3,764	5,608
Wheat-grain sorghum, Southern Plains.....	1,092	9,433	3,314	1,647	2,332	5,514
Wheat-pea (Washington and Idaho).....	2,764	11,864	16,048	9,989	13,363	15,366
Northern Plains ranches:						
Sheep.....	2,711	6,914	4,470	4,557	6,057	10,949
Cattle.....	954	6,439	3,778	2,863	2,108	4,164
Cattle ranches, Inter- mountain region.....	2,892	8,665	4,481	4,625	5,728	8,519
Southwest ranches:						
Sheep.....	- -	5,224	953	3,294	723	6,062
Cattle.....	- -	5,698	323	3,016	-1,245	4,873
Poultry farms, New Jersey (egg producing)..... 2/	- -	5,976	-905	3,273	2,326	2,127
1/ Preliminary		2/ Revised				



# PRODUCTION, INCOME, AND COSTS

Commercial Family-operated Poultry Farms, New Jersey (Egg Producing)

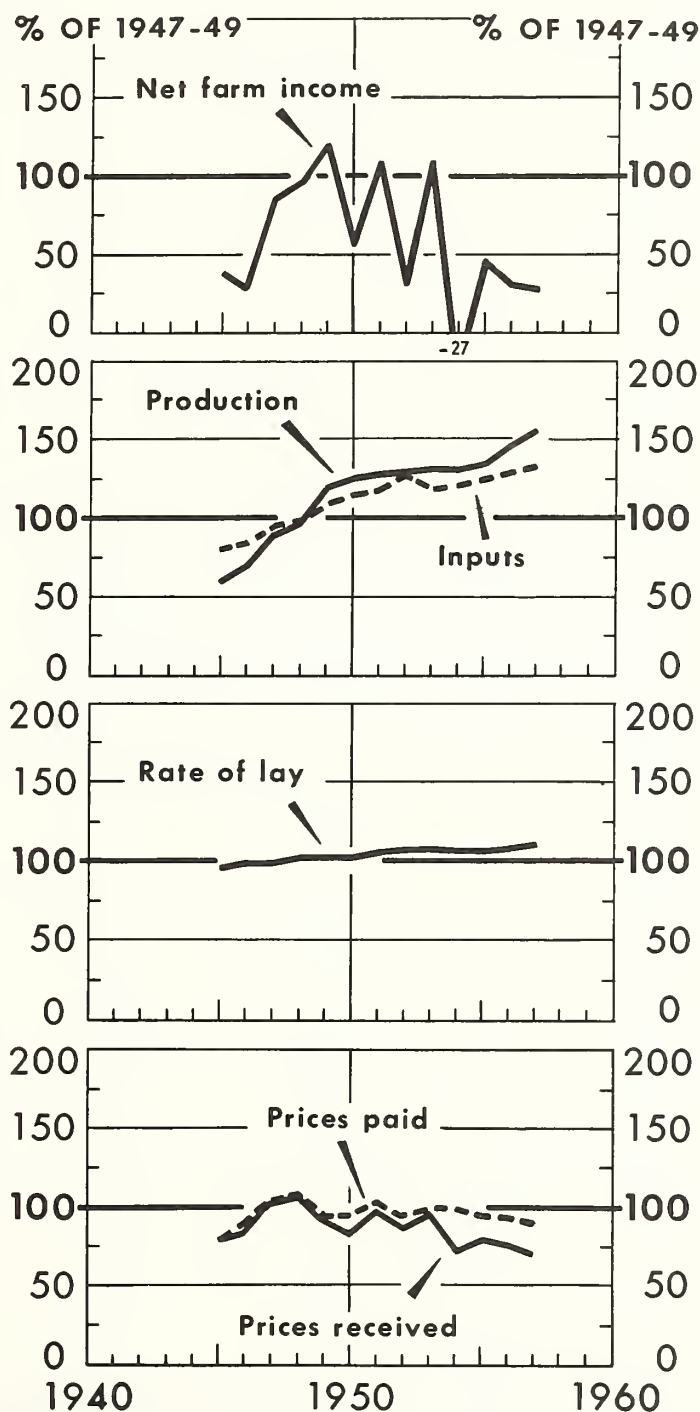
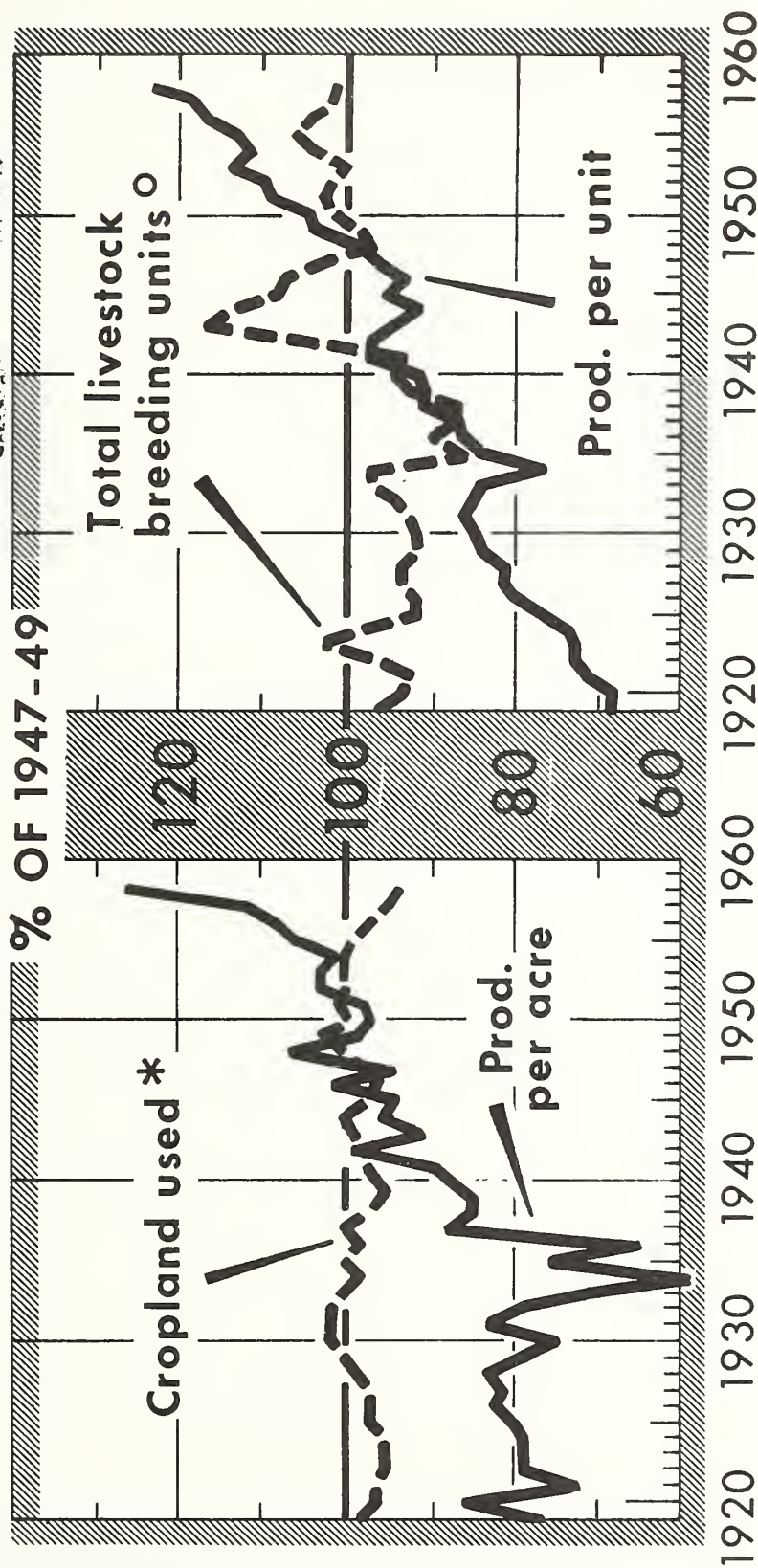


Figure 1





# FARM PRODUCTION PER ACRE AND PER ANIMAL



\*ESTIMATED ACREAGE FROM WHICH ONE OR MORE CROPS WERE HARVESTED  
PLUS ACREAGE OF CROP FAILURE AND SUMMER FALLOW

○ INCLUDES ALL BREEDING LIVESTOCK EXCEPT HORSES, AND ALL LIVESTOCK PRODUCTION  
EXCEPT FARM-PRODUCED POWER OF HORSES AND MULES

Figure 2





or more in all States and in 30 States the increase exceeded 5% (Figure 3). Largest gains occurred in the Northeast, Georgia and Florida, in the northern Plains States and in California. The national index of average value per acre for November 1, 1958 was 163 (1947-49=100).

Values increased 2% or more in 35 States in the 4 months ended November 1, 1958 but were essentially unchanged in the other 13 States. States showing only nominal changes were located in 3 general areas; one such area included New York, Ohio, Michigan and Wisconsin. The second included Missouri, Kansas and 2 Delta States--Arkansas and Louisiana. The other area included 4 of the Mountain States. Most of the States showing largest increases were located along the Atlantic Coast, where concentrations of urban population continue to exert upward pressures on land prices. The national index advanced 3% in the latest 4-months period, compared with 2% gains in the same period of 1957 and in the 4 months ended July 1, 1958.

Factors which have contributed to the rise in farm real estate values that has occurred for the last 5 years are complex. Among these factors were inflationary pressures, demand for land and buildings for nonfarm uses, Government programs for agriculture and the cost reductions possible from larger operating units. Demand by established farmers for additional land with which to enlarge their present farms continues to give strength to the market in most commercial farming areas, notably the western Corn Belt and spring wheat areas. Nationally, about 40% of all voluntary transfers in the year ended March 1, 1958 were for farm enlargement. (Figure 4)

69. Farm debts and taxes continue upward trend. Total estimated farm debt (excluding price-support loans) rose from \$19.0 billion to \$20.3 billion during 1958. (Figure 5) On January 1, 1959, this debt amounted to about 10% of the value of farm assets. Farm-mortgage debt increased in 1958 for the thirteenth consecutive year and on January 1, 1959, totaled \$11.2 billion, nearly 7% above the previous year. This is the highest figure since January 1, 1925, and is 133% above the post-war low in 1946. Non-real-estate debt (excluding price-support loans) also moved upward to \$9.1 billion on January 1, 1959. This was 7% above a year earlier and more than three times as large as at the beginning of 1946.

A rise of about 5% in farm property tax payments in 1959 is indicated by preliminary reports on amounts levied by State and local governments in 1958. (Figure 6) In most States, the taxes levied in one calendar year are payable in the following year. Levies in 1958 are estimated to have reached a record \$1,345 million. This was the eighteenth consecutive yearly increase. Levies on farm land and buildings, which account for 4/5 of all farm property taxes, are estimated to have gained about 6%. Farm real estate taxes levied in 1957 averaged 8% of net farm income before real estate taxes. By States, the proportion of farm income varied from 2% in North Carolina to 18%

in Massachusetts. Taxes absorbed 7.1% of farm income in 1956, 3.0% in 1944 (the World War II low), and 18.0% in 1933.

The growing tax burden on farmers in areas influenced by industrial and residential development is rapidly becoming a more serious problem. Taxes are especially burdensome in areas close to larger cities, where new subdivisions are expanding into rural areas. Rising tax rates have aggravated the difficult problem of assessing farmland in suburban areas. Analyses of data on land sales have shown wide ranges in land values in areas close to cities. Sales values of land that remained in farming after being sold were found to have risen little in comparison to land that was taken out of agriculture. The tendency of assessors to base farmland assessments on the value of all rural land may be imposing a disproportionate burden on farmer taxpayers.

70. Many farmers not participating in Old Age and Survivors Insurance program. Special tabulations from the 1955 Federal income tax returns filed by persons who reported farm income were analyzed. Preliminary findings indicate that: (1) Of the nearly 4.8 million persons having self-employment incomes from farming in 1955, about 2,150,000 paid an OASI tax on such income; (2) of about 2,640,000 persons not paying the OASI tax, nearly 1.4 million had insufficient farm income to qualify for OASI coverage and nearly 0.6 million qualified as to farm income but apparently failed to comply with reporting requirements. Most of the remainder were not required to report or pay a tax but could have qualified for coverage under optional privileges.
71. Study made of farm resources needed for specified income levels. How much land and other resources do farmers need in order to obtain levels of earnings for their labor and management equal to those of workers in nonfarm employment? In 1957-58, this problem was studied in six widely separated areas: Cotton-beef farms in the Piedmont of South Carolina; dairy-cotton in western Tennessee; cotton farms in eastern Oklahoma; dairy farms in eastern Wisconsin; wheat-beef farms in the central plains of Kansas; and wheat farms in the Triangle-Judith Basin of Montana.

To realize annual operator earnings of \$2,500 in these specific situations, needed investment ranged from \$14,000 for an eastern Oklahoma cotton farm to more than \$89,000 for a Montana wheat farm. Similar earnings could be made with investments of \$29,900 for a South Carolina Piedmont cotton-beef farm, \$24,000 for a dairy-cotton farm in western Tennessee, \$37,000 for a Wisconsin dairy farm, and \$80,000 for a beef-wheat farm in central Kansas.

To realize annual earnings of \$3,500, farm investment ranged from \$17,000 for an Oklahoma cotton farm to \$122,000 for a Montana wheat farm. These differences in investment were mainly due to varying proportions of capital and labor used in producing a given level of earnings. The Oklahoma cotton farm, for example, required less than one-sixth of the investment of the Montana wheat farm, but six times as much labor.



# CHANGE IN DOLLAR VALUE OF FARMLAND\*

Percentages, November 1957 to November 1958

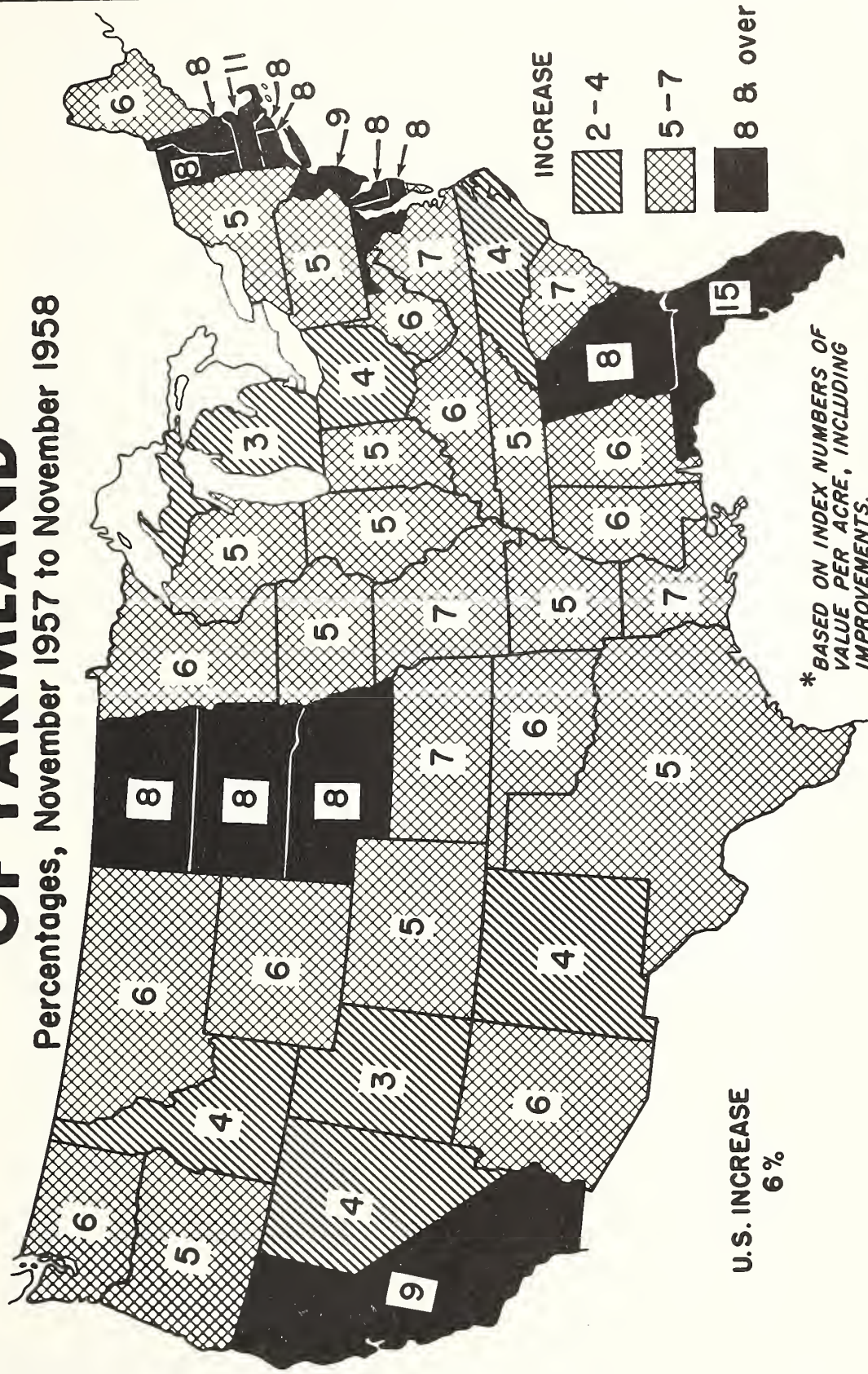


Figure 3





# FARMLAND PURCHASES FOR FARM ENLARGEMENT

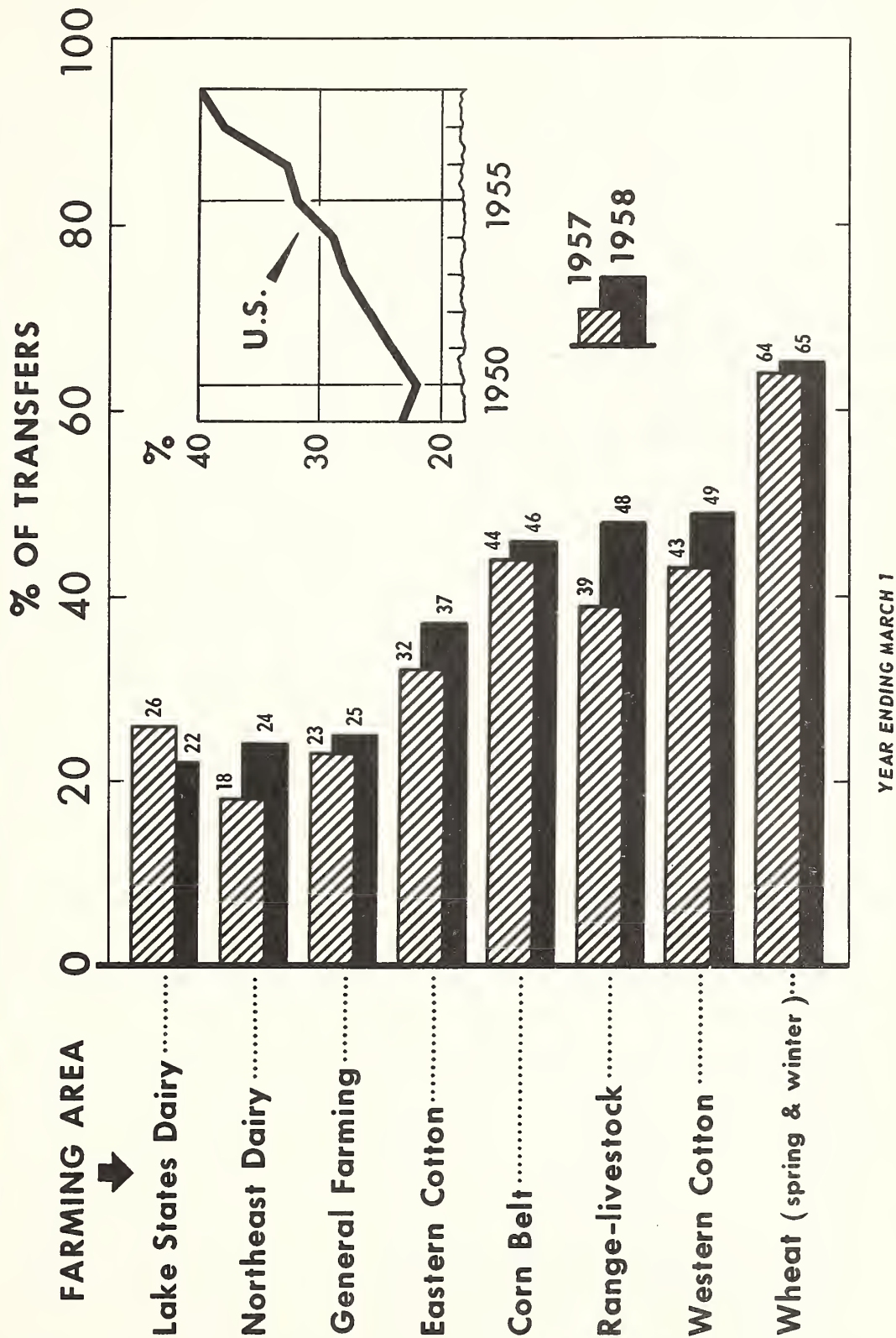
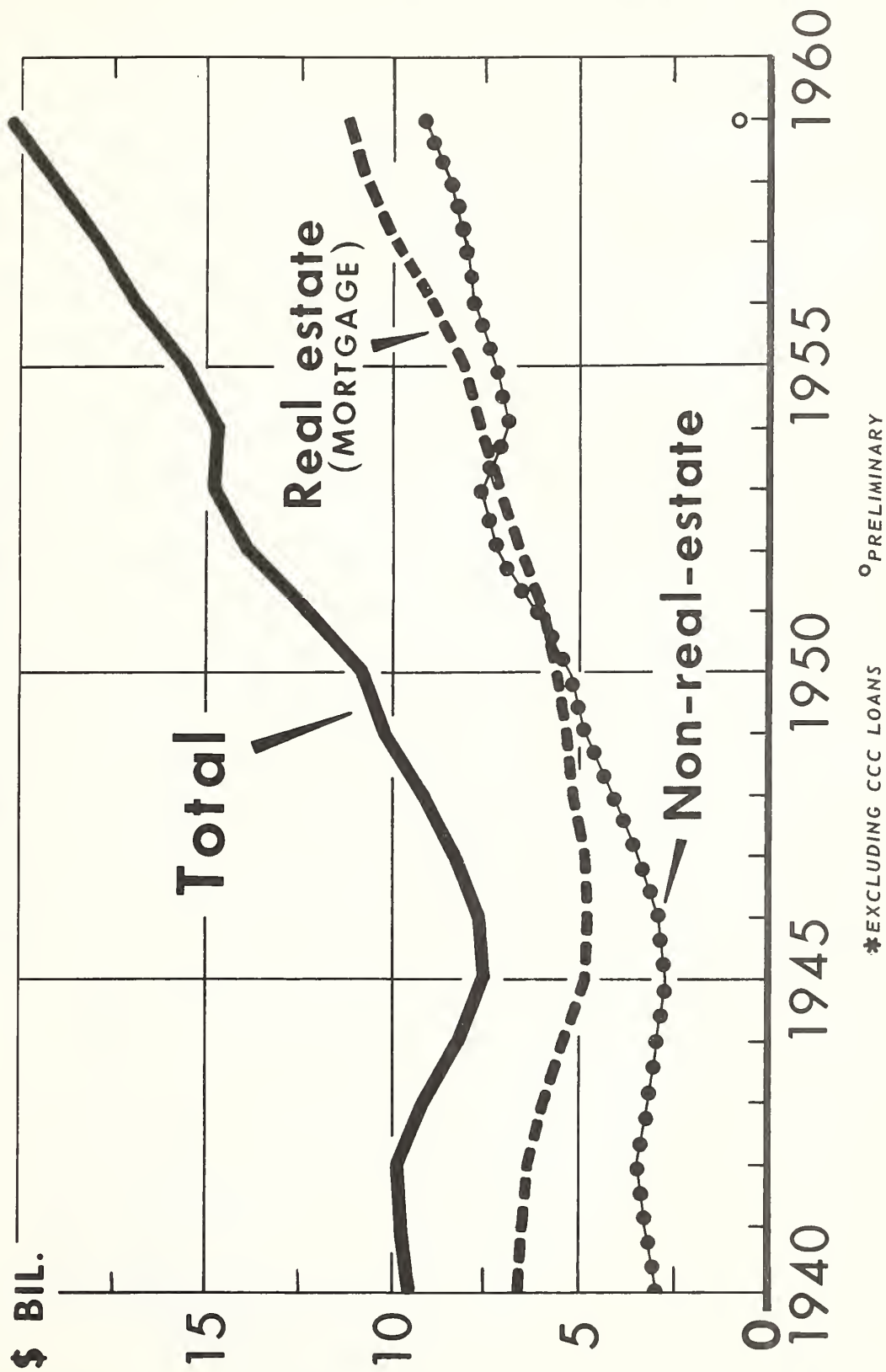


Figure 4





# FARM DEBT \*



U. S. DEPARTMENT OF AGRICULTURE

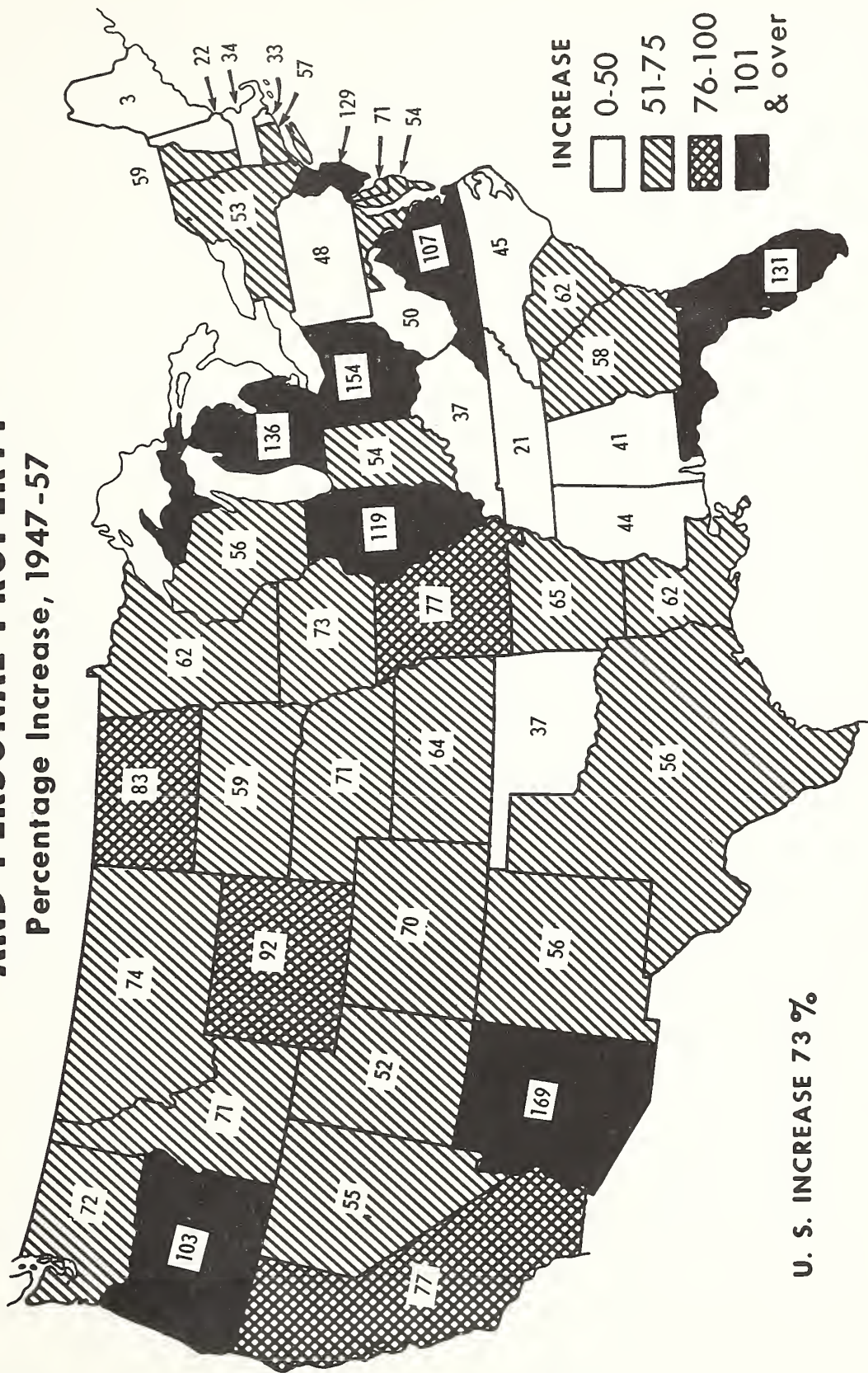
NEG. 58(10)- 913 AGRICULTURAL RESEARCH SERVICE

Figure 5



# CHANGES IN TAXES LEVIED ON FARM REAL ESTATE AND PERSONAL PROPERTY

Percentage Increase, 1947-57



U.S. DEPARTMENT OF AGRICULTURE

NEG. 58(11)-2615 AGRICULTURAL RESEARCH SERVICE

Figure 6





72. Seeding wheatland to grass is profitable only on lower yielding lands. A study in east central Colorado shows that converting wheatland to permanent pasture is relatively expensive. It takes time (3-5 years), and the initial seeding is not always successful. Land preparation and seeding together costs from \$5 to \$8 an acre, depending on the price of seed. Experience since 1940 has shown that about half the initial seedings fail and must be reseeded. The cost of converting cropland to pasture can be partly offset by planting a cover crop of sorghum and grazing it while the grass is being established. Even so, it takes 3 to 5 years before the undertaking shows a profit. Financial assistance is available through the ASC program, the Great Plains Conservation Program, and the Conservation Reserve Program. Where a pasture is established, and stocked with yearling steers, the annual net returns to land, labor, and management are estimated at \$3.50 to \$4.50 an acre. Animal gains are about 20 pounds per acre annually. This return is roughly 50% above the returns expected from native pasture. Both pasturage and income from seeded pastures increase to the 6th or 8th year and then gradually decline to the level of native pasture in 20 to 25 years. Conversion of cropland to pasture and livestock is economically feasible only on the poorer, lower yielding lands. Wheat production is more profitable on land yielding more than 6 bushels per seeded acre.
73. Increased investment is a crucial factor in Rural Farm Development. The experiences of 5,555 farm families provided operating credit and technical assistance by the Farmers Home Administration between 1947 and 1953 have been studied for the light they shed upon the nature and possible solutions of the problem of low incomes in agriculture. This study shows that many such families have the labor and management capacity to make substantial improvements in their incomes. Neither the fact that farm families now have low incomes and little capital wealth, nor their past patterns of farming, provide a reliable gauge of their production potentialities under more favorable capital conditions. Rather, the resources they commanded while under the FHA program were the crucial factor in the incomes and progress made by these farmers. The amount of working capital was particularly important.

When families were grouped by the value of their working capital (consisting of their livestock, machinery, feed, seed and other supplies, and cash reserves) there was associated with each \$1,000 increase in the investment in working capital an average increase in net income of about \$350 in both the South and the North and of about \$400 in the West. When they had about the same amount of working capital, families in the South earned about as much income as did those in the North. The amount of credit funds advanced by the FHA was an important factor affecting the amount of working capital and the incomes and rates of progress by families while under the FHA program.

74. Effects of Soil Bank Conservation Reserve Program. In cooperation with the Commodity Stabilization Service, field surveys of the effects of the Conservation Reserve Program were made in selected areas of Maine, Wisconsin, South Carolina, Texas, South Dakota, and Oregon during June and July of 1957. Preliminary reports were available in August 1957 in time for developing plans for the 1958 program.

The study shows that participation in the program is influenced by a wide variety of things in addition to payment rates, but that it is being used generally to expedite desirable changes in land use. Either permanent pasture or trees are being established on most of the land in the program, and both the productivity and the value of land put in the program are only slightly lower than for other land on the same farms. Participants in the program tend to be older than nonparticipants, more of them have nonfarm jobs, and more of them live off their farms. The program is most attractive to landowners in that it provides a reasonable return on investment in land but it does not compensate farm operators for accompanying reductions in earnings of labor, machinery, and other sources. The attached chart (Figure 7) shows the percentage of cropland in conservation reserve compared with the total cropland in 1954.

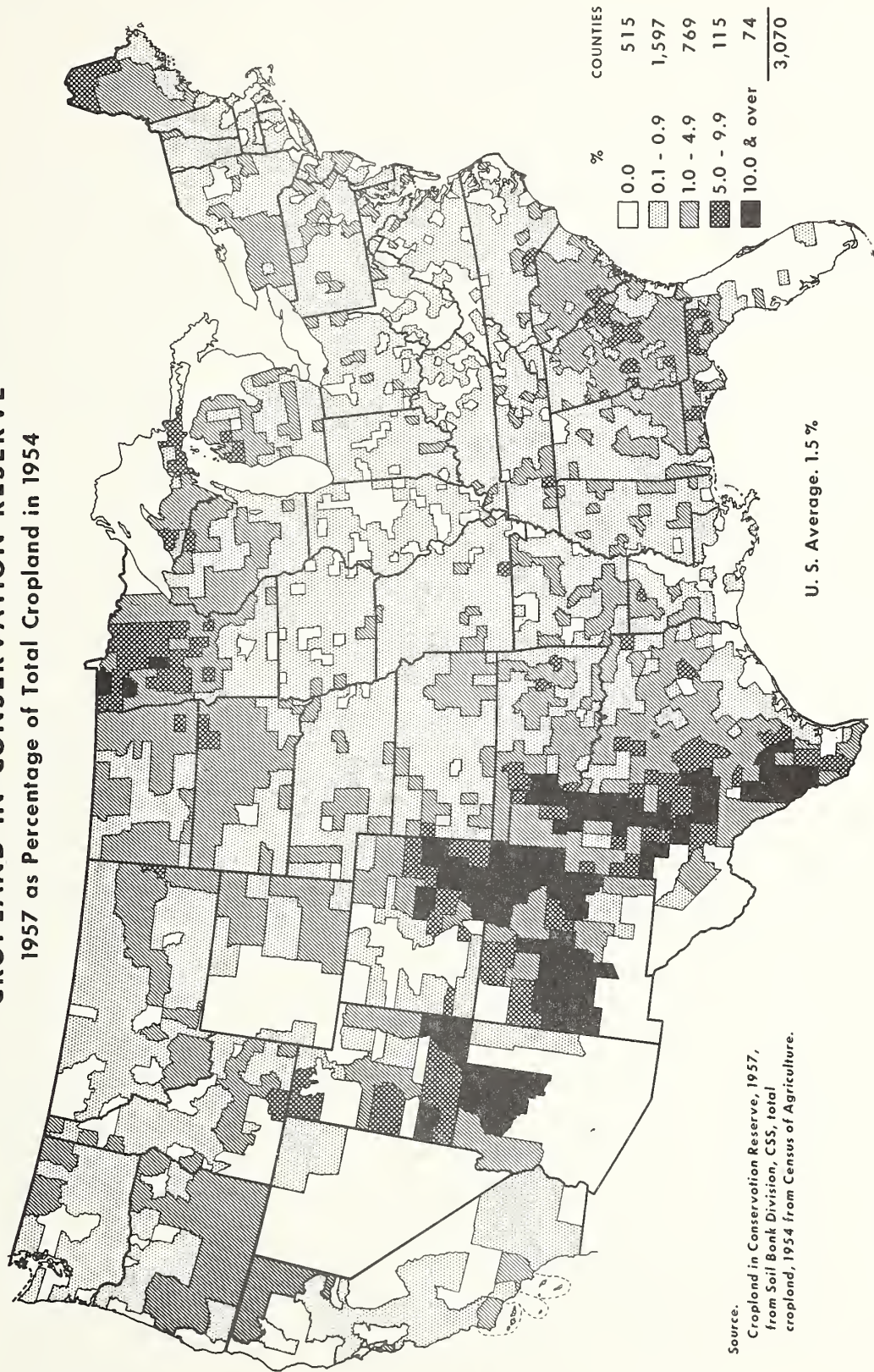
75. Fertilizer is becoming an important factor in determining crop output. At the average rate of 88 pounds of principal plant nutrients per acre of all crops and pasture fertilized in 1954, it is estimated that an additional dollar spent for fertilizer would have returned \$2.82. This rate of return (marginal) varied according to value of the crop per acre and soil and climatic factors affecting the response. At 1954 average rates of use on all crops and pasture, an increase in application of fertilizer by one ton would substitute for about 7.3 acres of land. These estimates of returns associated with fertilizer use are based on long time price estimates which in the main are lower than 1954 or current prices.

Looking ahead to projected needs for 1975, about 524 million acres of crop and pasture land would be required if fertilizer and other production practices remained at current levels, an increase of over 30%. But if rates of application that would represent a marginal return of \$2.00 (132 lbs.) were applied to the same number of acres fertilized in 1954, the 1975 projected needs could be met from about 476 million acres. This would be an increase of only about 19% in crop and pasture land. Going from the 1954 average rate of 88 pounds to a rate of 132 pounds of plant nutrients is estimated to result in an average yield increase of all crops and pasture of about 10%.

76. Contract farming is increasing. A reconnaissance study of contract farming shows that there is a considerable amount of farmer-business integration in broiler and turkey production, and in sugar crops, vegetables, fruits, dry beans and peas, potatoes for processing, seed crops, and most specialty crops such as mustard seed and safflower. Some integration also exists in the production of cotton, tobacco, alfalfa for dehydration, forest products, hogs, market eggs, and dairy products, and in beef and lamb fattening.



# **CROPLAND IN CONSERVATION RESERVE** **1957 as Percentage of Total Cropland in 1954**



Source.  
 Cropland in Conservation Reserve, 1957,  
 from Soil Bank Division, CSS, total  
 cropland, 1954 from Census of Agriculture.

**Figure 7**





The proportion of farm production covered by farmer-business agreements of various kinds is increasing. Forces underlying this development include the growing need of mass merchandisers and processors for standardizing quality and stabilizing daily and stabilizing daily and seasonal flows of farm products. The study indicates that integration provides financing, speeds adoption of technology, lowers costs, reduces some risks, and improves efficiency. Output is increased, especially if contracts include financing.

Contracts involve negotiation of prices and the conditions of production. Farmers need to maintain bargaining power to ensure receiving a proper share of the benefits from gains in efficiency realized through integration. Adequate research and market information and the strengthening of cooperative activities can help in this process.

77. Use of land contracts in purchasing land is increasing. A study of land contracts in Iowa indicates that (a) the use of such contracts for purchasing land has about doubled in the past 10 years due to tax advantages, higher farm capital requirements, and limited amounts of land available for rent; and (b) in comparison with purchase money mortgages, land contracts require lower down payments, leave title and deed with seller as a security safeguard, follow forfeiture rather than foreclosure procedures in case of default, and are not subject to deficiency judgments or redemption period requirements. For the 155 cases studied, the term averaged 14.5 years; interest rates averaged 4%; prepayments were permitted by 30%; annual payments averaged \$1,432; and age of purchaser averaged 40.5 years. Purchasers under installment contracts are poorly informed of their rights and responsibilities, particularly as to crops and improvements in case of default, loss in case of fire, and sale of personal property included in the contract.
78. Existing water laws inadequate in humid areas. A recent report on legal aspects of water use in North Carolina shows the complexities and uncertainties of the water rights situation. The irrigation permit system established by the State legislature in 1951 was found in practice to provide little more than a means of recording the location of irrigation contemplated in requests for permits. Nor does the 1951 law as applied appear to have clarified legal rights to the use of water for irrigation purposes. Different legal principles have been applied to different types of natural water sources, notwithstanding their interrelationships. No clear determination has been reached on what constitutes riparian lands and the extent to which water from a water course may be used on nonriparian lands. Many questions on priority of use remain uncertain. The study indicates the need for a careful consideration of the existing legal framework into which any new legislation must be fitted. Similar studies are being made in Illinois, Louisiana, Minnesota, Indiana, Ohio and Wisconsin.



Agricultural Engineering Research

79. Improved castor-bean harvester developed. Over 10,000 acres of castor beans were harvested in California, Arizona, and Texas this past season with 26 harvesters built by three local companies within the past 2 years. These harvesters employed many components and features of the harvester developed by the Department in cooperation with the Oklahoma Experiment Station. All three companies had received cooperation from the Department in this work. During the past year a lower cost, two-row tractor-mounted stripper has been developed for harvesting castor beans without hulling. The stripped beans would be hulled by a unit at the field-side or at the processing plant.
80. Electric resistance gauges facilitate study of implement-soil relationships. Small pressure cells with electric resistance strain gauges for measuring soil forces have been developed at the National Tillage Machinery Research Laboratory. These strain gauges also have been successfully attached to a tractor ~~track shoe~~ to measure the magnitude, direction, and frequency of forces applied to the soil by track-type tractors and transport vehicles. These devices will make possible basic studies of the effects of tillage, transport, and traction equipment on agricultural soils, particularly the relation of such equipment to the problems of compaction and plow and traffic soles.
81. Increased effectiveness of Cooperative Farm Building Plan Exchange. Illustrative material for new designs for farm houses and service buildings developed cooperatively for the western region are now being published as leaflets. The change from a bound catalog of illustrations for each region to leaflets illustrating single plans greatly increase flexibility and utility and is being welcomed by State extension workers in all parts of the country. The leaflets are used by county agents in loose leaf plan catalogs and as hand-outs to aid farmers in selecting plans for new buildings or seeking guides for remodeling.

Through June 30, 1958, the Cooperative Farm Building Plan Exchange had developed designs for two farm houses and 19 service buildings suited to the western region. In most cases these designs are also suited to certain locations in other regions. This broader use is greatly facilitated by the new leaflets.
82. Automatic hog feeding operation developed. Department engineers, in cooperation with the Illinois Experiment Station, have improved facilities for the automatic feeding of hogs. A unit has been developed which includes automatic equipment for unloading flat bottom feed storage bins; mixing, grinding, and delivery of feed to self-feeders; supplying water; removing manure; and cleaning of the floor. Feeding space of the present experimental unit is designed for 30 to 40 hogs. However, except for space, the various elements of this facility could easily handle several times this number of animals.

83. New equipment for cotton seedbed gives better emergence in rainfall areas. The shape or profile of the seedbed left after planting has an important bearing on emergence of cotton plants as well as subsequent operations. The new plateau seedbed profile (formerly called "W" type) has proved to be superior, particularly if heavy rains follow planting. The Oklahoma Experiment Station and the Department have developed cooperatively two types of planting equipment which make this new plateau profile seedbed when planting. Local farmers are having machine shops modify their planters. Three major implement companies have built experimental models of these planters, which are being tested in cooperation with industry.
84. Pallet boxes for apples reduce harvesting and handling costs. Research results obtained at Wenatchee, Wash., by the Department in cooperation with the Washington Experiment Station, show that properly designed pallet boxes lower the cost of handling and minimize bruising of fruit. This cost-reducing method is being adopted for handling both quality fruit for fresh market, and canning and processing apples.

#### UTILIZATION RESEARCH AND DEVELOPMENT

Current activities: Investigations are conducted in the field of chemistry and related physical and biological sciences to develop new and improved foods, feeds, drugs, fabrics, industrial chemicals, and other products from agricultural commodities. New methods for evaluating the suitability of commodities for processing, and improved processing methods are devised and tested. Ways are sought to increase the use of byproducts. The purpose is to effect maximum utilization of agricultural commodities.

#### Selected Examples of Recent Progress.

1. New technique for production of vitamin A developed. A new technique of mating certain strains of molds has been applied to produce beta-carotene in exceptionally large yields. Both grain and oilseed products are required for optimum production. Beta-carotene, which is converted in the body to vitamin A, finds large uses in mixed feeds and fortified foods to provide both vitamin content and yellow color. The carotene produced in the fermentation remains in the mold cells and is recovered readily by filtration. It eventually is formed in a bright orange cake, which may be used directly as a concentrated source of vitamin A in feeds. A pure crystalline product for food or pharmaceutical uses may be obtained by extracting the filter cake with a solvent. The cost of producing beta-carotene by the new process is expected to be less than half the current price of the synthetic product. Nearly 200 pure cultures of the necessary molds have been furnished to fermentation and chemical companies currently studying this new development. This technique results from application of basic research on molds by the West Virginia Experiment Station.
2. Safe drying temperatures determined for artificially drying corn to meet industrial needs. A rapid test method for detecting overheated corn is being used profitably by the corn wet milling industry.



Cooperative research with the Illinois Experiment Station has shown that the maximum safe temperature which corn for processing may reach during frying is 130-140°F. Corn harvested by a picker-sheller, at moisture contents of 20-30%, must be dried before moving into the grain markets. Artificial drying by hot air is widely used on farms and at country elevators. The grain in some cases is heated up to 200°F. Over-heated corn causes serious processing difficulties in industrial wet milling. In addition, starch yields are lower and starch quality is lowered by inability to free it of protein.

To reduce the quantity of overheated artificially dried corn coming on the market, the corn industries are conducting an educational campaign among grain buyers, elevator operators, and farm groups to promote safe drying. Our research reports are cited and reprints of articles are widely distributed by the Corn Industries Research Foundation and individual companies. A supply of suitable raw material for the wet-milling industry is necessary if efficient operations are to be maintained. Wet milling is the largest single industrial outlet for corn—140,000,000 bushels per year.

3. Navy adopts cotton fabric designed for its personnel. A lightweight, tightly-woven cotton fabric has been designed for the Navy for use in summer flight uniforms. This fabric is permeable to air but impermeable to water. After laboratory and in-service tests indicated the suitability and comfort of the fabric, the Department of the Navy conducted large scale service tests which led to its approval for summer flight wear. Adoption by the Department of Defense marks a step forward in meeting the serious competition afforded by the synthetic fibers.
4. New cotton Opener-Cleaner adopted by textile industry. Mill reports indicate the new cotton Opener-Cleaner developed by the Department operates with twice the cleaning efficiency and one-half the fiber loss of conventional equipment. The Opener-Cleaner fills an urgent need for greater efficiency and economy in processing high-trash content cotton that has been mechanically harvested or hand-snapped instead of carefully picked by hand. This is extremely important to the industry because of the increasing proportion of cotton now mechanically harvested (about 32% in 1957) and hand-snapped (about 24% in 1957). The new cleaner is helping greatly the transition to lower cost mechanized farming. Its adoption will enable mills to use high-trash cottons in products now requiring the use of higher grades. Seven manufacturers are licensed under Department patents to produce the new Opener-Cleaner.
5. Improved techniques for producing cotton yarns are widely used by industry. Increased processing efficiency and improved yarn uniformity are being achieved by the cotton textile industry through the use of new techniques developed by the Department's pilot plant for the production of carded and combed cotton rovings. Rovings are small yarn strands drawn out of larger strands of fibers in the early stages of yarn manufacture. It is necessary to give the roving a certain amount of twist to prevent the fibers from falling apart. The



amount of twist required is determined by the length, fineness and the parallelization of the fibers as well as the size of the roving. Department studies have resulted in new formulas for applying the twist. The formulas have been incorporated into easy-to-use nomographs made available to all cotton mills. The widespread use of the formulas eliminates previous trial and error methods. The formulas make certain the selection of the optimum twist required in the spinning process, thus contributing to the production of higher quality yarns and to improving processing efficiency.

6. Dimer acid from vegetable oils gains importance as industrial raw material. Research for 10 years on production and use of dimer acid from soybean oil, has developed outlets absorbing more than 10 million pounds of vegetable oil annually. Dimer acid was recently found to be useful in the manufacture of flexible and rigid foams, coatings for concrete, and glass-fiber laminates. The wide range of current uses is evidence of the variety of qualities in it. Previously known outlets were in the manufacture of paint resins, adhesives, paper coatings, and sealing compounds for metal, paper, and other containers; in heat-stable plastics for die-casting molds, in thickening agents for gelled paints; and in compounding of plasticizers, lubricants, insecticides, and emulsifying agents. This is an example of how a farm crop, through chemical research, can be made and sold competitively on the basis of quality and price.
7. Wider markets developed for cottonseed meals in mixed feeds. Cottonseed meal, for decades used almost entirely as a cattle and dairy feed, is now being used extensively in mixed feeds for poultry and swine. It is estimated that up to 500,000 tons have been used for these mixed feeds in some recent years. Cottonseed processors now advertise special meals made especially for use in mixed feeds for broiler and swine rations. The meals are high in nutritive value and, at the levels used, are not toxic to these animals.

The wider use of cottonseed meal in mixed feeds has been made possible by research directed toward ~~protein changes taking place during cottonseed processing that influence nutritive value.~~ Measurements are available to test process control and product for protein quality. The research was conducted in cooperation with commercial, State and Federal research groups and was supported in part by fellowships of the National Cottonseed Products Association.

8. Improved protective coating from tung oil commercialized. A varnish resin that can be used for a wide variety of high-grade, inexpensive coatings can be made from tung oil by a newly developed process for which a public service patent has been issued. The process is based on finding that the addition of relatively small quantities of zinc resinate will permit cooking of the tung oil varnish without gelling. The varnish resin product is so versatile that it can be used to prepare coatings ranging from a penetrating floor sealer or metal primer to a four-hour ~~enamel~~ for either exterior or

interior use. High viscosity with low solids permits the use of very thin films of protective coatings, and reduces costs. The new varnish is excellent for lining metal drums and is used commercially for this purpose. Other commercial uses include floor sealing and structural steel priming. This development was supported in part by a fellowship of the Tung Research and Development League.

9. Quality of frozen foods improved. Results of 8 years of Department research designed to determine the quality changes that can result from inadequate control of temperature during distribution of frozen foods has been enthusiastically received by all segments of the industry. This classical research has produced practical and useful results such as schedules for frozen food handling and tests to measure temperature history during distribution. Important changes in the processing of peaches and green beans have resulted in marked improvement of these products. Perhaps the most significant development is the formation of an All-Industry Task Force with membership from the National Association of Frozen Food Packers, National Association of Frozen Food Distributors, National Association of Refrigerated Warehousemen, American Association of Railroads, American Truckers Association, National Association of Retail Grocers, Department representatives, and others, with the goal of speeding adoption of these research findings.
10. Potato flakes now produced commercially. Potato flakes, a new form of dehydrated mashed potatoes developed by Department scientists, are now being manufactured commercially. They are marketed in both consumer-size packages for home use and large containers for institutional use. Early sales indicate good public acceptance. Department research has also resulted in improved stability of potato granules, another form of dehydrated mashed potatoes, making possible significant economies in packaging and distribution. More than 20 million bushels of potatoes will reach consumers as flakes and granules this year, and the industry is growing rapidly.
11. Laboratory scale sugar beet factory tackles processing problems. The beet processing laboratory provided by cooperation of the Beet Sugar Development Foundation has already been used to evaluate the processing characteristics of beets grown with normal and very high nitrogen fertilization. It was shown that, regardless of the processing procedure used, high-nitrogen sugar beet processing liquors retained more non-sugar molasses-forming impurities than those of normal beets. Excessive nitrogen fertilization can cause needless expenditures for fertilizer and at the same time increase undesirable molasses formation by more than 50%. Information of this nature is essential in balancing fertilizer costs and yields in the high quality production of sugar and molasses with processing costs so as to obtain maximum profit for both farmers and processors.
12. Conversion of waste feathers now a big business. The Department process for producing a high protein feedstuff from waste feathers has been introduced into commercial practice for recovery of over half the feathers (about 75,000 tons) available at poultry processing



plants. These feathers, once a disposal problem, are now an economic asset. Recent contributions to this profitable development have been to provide technical information to prospective feather processors, and to develop accurate information on the feed value of the processed feather meal in order to upgrade its use and increase its market value. Data provided on amino acid content and digestibility will encourage greater and more efficient utilization of feather meal in livestock feeds. This will help to offset processing costs for poultry meat.

13. Studies point to improvement of leathers. Studies of the composition and structure of animal hides by Department scientists have uncovered several significant structural details in the grain surface. One of these--the demonstration of the presence of an elastin network--places new emphasis on elastin as a cause of grain defects and suggests several new methods of remedying the defects. Grain defects are the major cause of low quality in grain leathers. Modification of the elastin network may reduce certain types of defects and may even create new grain properties for leather. Improvement in the quality or utility of leather is needed to increase the demand for hides which are now a surplus agricultural commodity.

#### HOME ECONOMICS RESEARCH

Current activities: Investigations are conducted on human nutritional requirements, composition and nutritive value of foods, and problems relating to the household preparation and preservation of foods. Studies are made of problems in household utilization of textiles, clothing, and equipment, and of family requirements for housing and related facilities. Investigations are made also of food consumption practices and the nutritive value and economy of customary diets, patterns of rural family expenditures and production for household use, and economic problems of household management.

#### Selected Examples of Recent Progress

1. New tables of heights and weights point to future needs. The growth of children in the U. S. today as compared with 50 years or more ago is shown in reference tables assembled for use by nutritionists in evaluating nutritional status and adequacy of diet. At all ages boys and girls today tend to be taller and to get their adolescent growth earlier than in previous generations. However, there are regional differences that may relate to population origins, economic factors and urbanization.

Average heights of young men and women today are close to 70 and 65 inches respectively--about 2 inches taller on the average than 50 years ago. These and available annual data from some older men's and women's colleges over the last 60 to 100 years show an increment in average height amounting to 0.3 to 0.5 inch per decade since 1900. For the same heights, women weigh slightly less now than 50 years ago. Young men are slightly heavier for their height



than formerly, but men in the senior brackets weigh less. These changes in body size have implications for the quantity and quality of food requirements, and hence for national food supplies and agricultural production.

2. Mineral content of vegetables analyzed. In some vegetables wide differences in the content of certain minerals are due to conditions under which they are grown. This was shown by round-the-year samplings and analyses of selected vegetables reaching the Washington, D. C. market, which were traced back through wholesalers and shippers to growers. Composition data obtained can be weighted by seasonal volumes from points of origin to any major market to give year-round average values. Data on lettuce studied in 2 years confirmed findings on location differences which were greatest between California-grown and New Jersey- New York-grown vegetables. Some elements showed no differences between locations; but for many elements, differences were up to twofold. Up to tenfold differences for sodium and manganese were found in lettuce, cabbage and celery.
3. Amino acid values in food published. The new Department publication, "Amino Acid Content of Foods," provides for the first time information needed for estimating the amino acid content of foods, dietaries, and food supplies. The publication, containing average values for 18 amino acids in over 300 foods, is of interest not only in the U. S. but throughout the world to those concerned with improving the protein quality of diets of large segments of the world's population. It has long been known that the nutritional value of a protein is related to the kinds and amounts of amino acids it contains. Only in recent years, however, have satisfactory methods of analysis been developed which permit more rapid and less costly investigations of amino acids in foods. The new tables will provide a basis for showing how the amino acid pattern of one food may supplement that of another food.
4. Consumer information on poultry obtained. Today's tender, plump young chickens can be oven-baked at higher temperatures for shorter cooking time than was formerly recommended. Department studies show at 400°F., the chicken comes out about the same, delicately browned, plump and juicy.

Similar studies show that turkey is also at its best when cooked the shortest possible time for adequate doneness. Small turkeys can be braised at 450°F. in a covered roaster in much less time and with the same quality as turkeys roasted in an open pan at 325°F. However, the appearance of the roasted turkey is better. Roast turkey yields almost 50% edible meat, about the same as chicken but roast duck yields less than 25% cooked meat because of its higher fat content.

5. Potato Facts for Consumer Education. A new Department publication on potatoes, the latest in the series—"Facts for Consumer Education"—points out the nutritional contribution potatoes can make to diet

in relation to cost and as a staple food in everyday meals. For example, one medium sized potato, cooked plain, can furnish about 1/4 of the daily ascorbic acid, and 8 to 10% of the iron, thiamine, and niacin needs of a 25-year old man, but will account for only 4% of his calorie needs. Other reference material in this publication includes market information about fresh potatoes as well as new developments in processed potatoes available to the consumer.

6. Changes in farm family living expenditures studied. Between 1941 and 1955 farm operator families tripled their spending for goods and services used in everyday living, according to data from two nationwide Department surveys. Even after adjustments for price increases during the period, the average farm family spent \$1.60 in 1955 for every \$1.00 in 1941. Farm families increased their spending relatively more than city families during this period. In 1955 the per capita money expenditures of the farm families was about one-half as great as that of urban families, compared with about one-third in 1941. Farm spending came closest to urban spending in the area of medical care where it totaled about three-fourths of the urban figure.
7. Budgets for family food management revised. The Department's family food budgets have recently been revised to keep pace with advancing nutritional knowledge and with changes in food habits and cost relationships. Each of three plans—low-cost, moderate-cost, and liberal-cost—has separate figures for 20 age and sex groups so that household or population totals may be obtained. These budgets are widely used by families who want to know how much money they have to plan to spend for food each week or who want help in spending wisely the amount of money they set aside for food. Welfare agencies in many States and larger cities use the low-cost food plan in counseling with clients and as the basis for public assistance grants. Correspondence indicates that more than 20 State and city agencies are revising their food allotments using the latest Department budgets as a guide.
8. Research data translated into graphic standards for home planners. A handbook, "Planning Guides for Southern Rural Homes," has been prepared in cooperation with southern experiment stations. Over 100 diagrams present basic planning information needed for designing work areas and storage facilities for food preparation and preservation, meal service, laundry, and children's play activities. Likewise, findings on space requirements for food preservation activities and for storage of household textiles have been prepared for a report, cooperative with the Western Region, entitled "Space Standards for Home Planners." New material pertinent to functional planning of farmhouses will be added to both books as results of laboratory research become available. They will be useful to architects, builders, extension workers and other house designers.



9. Performance of worsted serge in dry cleaning and service studied.  
In current investigations on performance of textiles under use conditions, standard serge from Targhee sheep was made into 90 pairs of trousers. They were worn by Gallaudet College students and the effect on the fabric of wear during one, two and three winters was determined on 54 pairs. Eighteen pairs were withdrawn from wear after each of 3 academic years, (or after 11, 22 and 33 weeks). Changes in breaking strength and other properties were determined and a basis for predicting rate and degree of deterioration obtained. In 36 pairs the wear-life and characteristics of worn-out garments were determined. Wear-life averaged 26 weeks. Other tests showed that dry cleaning had little effect on appearance or physical properties.

ADMINISTRATION OF PAYMENTS TO STATES, AND RESEARCH IN ALASKA,  
PUERTO RICO, AND VIRGIN ISLANDS

Current activities: For work to be done under Federal grant funds, new and revised research proposals from the State agricultural experiment stations are evaluated and approved, annual programs and budget allotments are reviewed and approved, work and expenditures of each experiment station are examined in the field, and assistance is given to States in organizing, planning and coordinating their research.

The Department operates agricultural experiment stations in Puerto Rico, the Virgin Islands, and Alaska. In Puerto Rico research is conducted primarily on tropical and subtropical crops of economic importance to the continental United States including food, forage, and specialty crops. In the Virgin Islands research and extension work is conducted in the fields of soil and water conservation, improvement of crop plants for commercial and home use, animal husbandry, and development of better rural living conditions. Research in Alaska, carried on as a joint program of the Department and University of Alaska, includes soil analysis, horticultural studies, animal husbandry, agricultural economics, agricultural engineering, insect and plant disease control, and field crop improvement studies.

Selected Examples of Recent Progress

1. Puerto Rico study shows how to increase cortisone yield from yams.  
In assaying the sapogenin content of promising selections of wild yams, research workers in Puerto Rico have discovered the conversion mechanism whereby the yield of steroidal sapogenins is doubled. It is a rapid (1 hour or less), internal conversion by an enzyme system of tissues which are homogenized. This finding is of great importance in the fields of biochemistry and medicine. At present commercial extraction of tubers yields 3 to 5% steroids. However, two selections have been reported from the station producing large tubers with an average steroid content of 7.9%.



The source of cortisone and related pharmaceutical compounds for the U. S. has been chiefly tubers of the diminishing wild Dioscorea species collected in Mexico and Central America. Research has been under way for several years to domesticate and cultivate desirable wild species for the Southern States and Puerto Rico

2. Higher yields of sugarcane obtained in the Virgin Islands. New sugarcane varieties with higher yields are being tested for relatively dry producing areas of the Virgin Islands. Through a series of experiments, preliminary recommendations to farmers have been developed regarding fertilizer use on the various soil types. It has been found that sugarcane responds significantly to nitrogen on all soil types, but not to phosphate on any of the soil types, and to potash on only one soil type. These findings should lower fertilizer costs paid by farmers without reducing yields.
3. Potato production improved in Alaska. Potatoes are one of Alaska's major cash crops. Experiments indicate that soil potash deficiency is limiting potato growth under intensive cultivation, and that this condition is corrected by liberal applications of potash fertilizer or by foliar sprays. Research shows that a 1% spray applied at weekly intervals during July and August is an efficient corrective measure. Combined with applications of 80 pounds of K<sub>2</sub>O per acre, in a balanced fertilizer mix, foliar treatment increased yields fourfold. Most gains were made through larger, rather than more, tubers per plant.

## PLANT DISEASE AND PEST CONTROL

Current Activities: The work is divided into three categories: (a) insect and plant disease control, designed to protect agriculture from destructive insects and plant diseases, including inspection to detect and appraise infestations, certification of regulated articles, supervision of treatments required by plant quarantines, application of pesticides, and use of other methods of combating infestations; (b) protective measures, primarily inspections at ports of entry to prevent the introduction from abroad of pests and plant diseases, and certification of the absence of plant pests on plants and plant products for export; and (c) administration and enforcement of the Federal Insecticide, Fungicide, and Rodenticide Act to prevent the sale of mislabeled and inadequately labeled economic poisons, and to safeguard farmers and other users from injury to crops, livestock, or themselves, and from loss resulting from deceptive, careless, or fraudulent marketing practices.

### Selected Examples of Recent Progress:

#### Plant Pest Control:

1. Barberry eradication. During the year ended June 30, 1958, more than 2,835,000 barberry bushes were destroyed. These bushes were found on 2,601 properties distributed over approximately 6,500 square miles. Of this area 4,827 square miles were placed on maintenance and will require only sufficient work in the future on infested sites to maintain the barberry-free condition. Of the 7,500 previously infested sites inspected, 5,400 were without bushes. The total area in the 19 States requiring further work now approximates 55,614 square miles. (See Figure 8).

Following inspection under the provisions of Federal Quarantine No. 38, 549 nurseries and 46 dealers were issued certificates of inspection permitting interstate shipment of barberry and mahonia plants. Nurserymen and dealers continue to provide excellent cooperation in this phase of the work.

2. Burrowing nematode control. New infestations were found in 5 Florida counties, and involved 165 citrus groves, 43 citrus nurseries, 33 ornamental nurseries, and 23 miscellaneous properties. (See Figure 9). Surveys during fiscal 1958 were carried out in 20 counties involving 1,203 citrus groves, 1,390 nurseries and other plant growing establishments.

The State Plant Board of Florida has the responsibility of administering control measures for the burrowing nematode. These measures involve the removal of infested trees from citrus groves, hot-water treatment of nursery stock originating from infested citrus nurseries, and the treatment of ornamental nurseries. During the fiscal year, the State Plant Board applied control measures to 203 citrus groves and 33 nurseries and greenhouse establishments. A total of 1,380 acres was involved.



# BARBERRY ERADICATION FOR STEM RUST CONTROL

NOTE: Figures within states show average annual production of wheat, oats, barley and rye. 1947-1956

June 30, 1958

AGRICULTURAL RESEARCH SERVICE

Proportion of state requiring work one or more times — 55,614 sq. miles

Proportion of state where practical control is obtained. Area on maintenance — 1,008,919 sq. miles

Territory outside present cooperative control area where eradication work should be done

June 30, 1958

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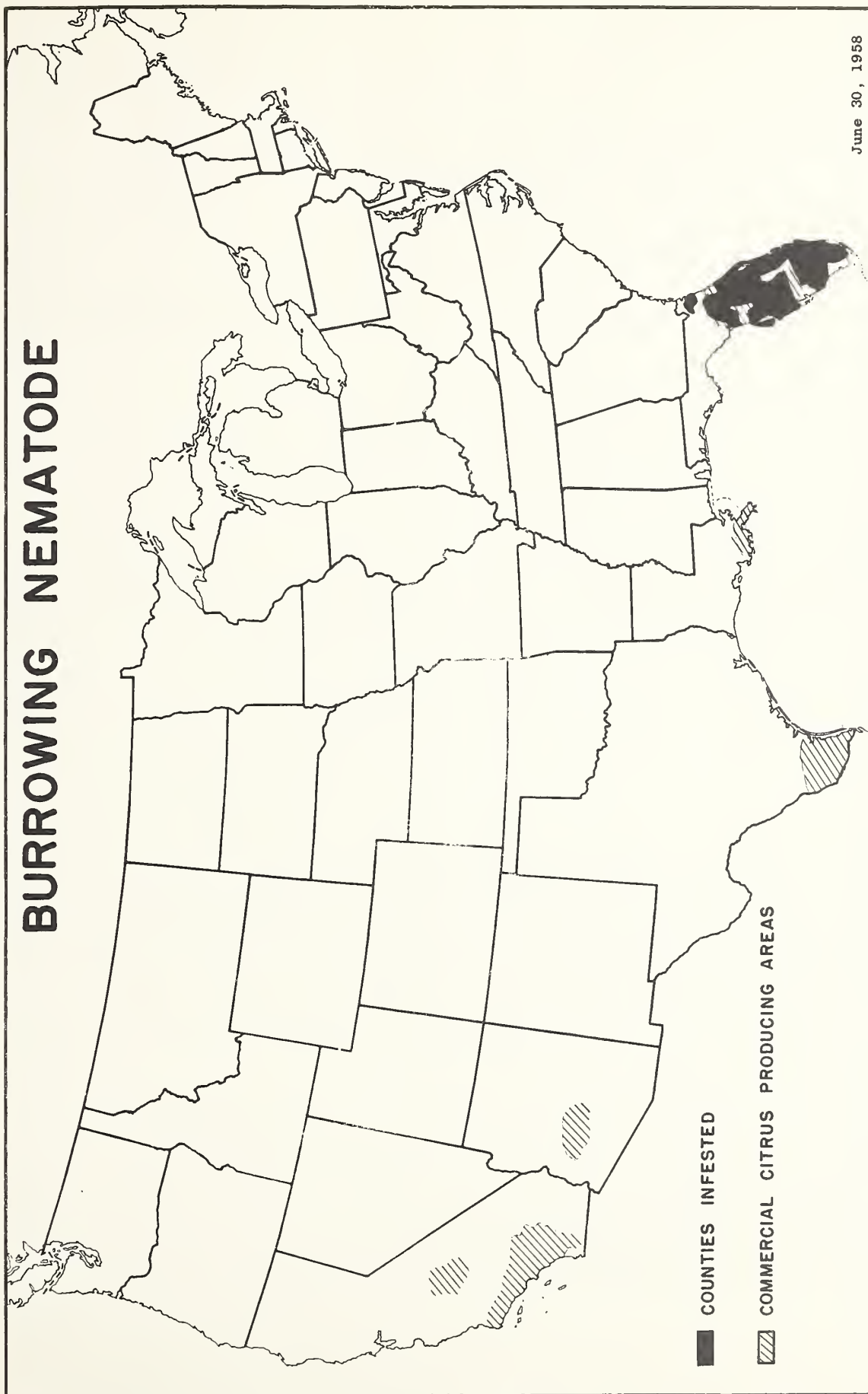
U.S. DEPARTMENT OF AGRICULTURE

FIGURE 8





# BURROWING NEMATODE



U. S. DEPARTMENT OF AGRICULTURE

FIGURE 9





### 3. Citrus blackfly and Mexican fruit fly control.

- a. Blackfly surveys in fiscal year 1958 failed to reveal any infestations in southern Texas. The last 14 infestations of the citrus blackfly on record were found during July and August of 1956. During fiscal 1958, 180,822 trees were inspected on 7,905 properties in Texas. Surveys conducted during the same period south of the border in Mexico, from Sonora east through Tamaulipas, included 1,251,749 trees on 29,900 properties, and revealed 527 infested properties with 3,291 trees. (See Figure 10). Careful checks in Mexico by trained observers revealed encouraging control from the liberation of parasites.
- b. Mexican fruit fly outlook materially improved in California and Baja California. The strengthening of regulatory inspections on fruit movement into California from Mexico, increased intensive trap surveys, and continuous control efforts on both sides of the border undoubtedly prevented a recurrence of the northward spread of the Mexican fruit fly such as happened in 1957. The unified efforts of the Mexican Department of Agriculture and State and Federal authorities in the United States obviated the need for a costly eradication program in California. No flies were trapped in Baja California after August 20, 1957; none in California after those caught in early July of 1957. California applied more than 70 cover sprays to nearly a million plants in the border protection zone. Parasite releases in Mexico gave promise of becoming effective. Infestations were unusually low in Texas, the first catch being recorded in December 1957 after much of the fruit had been marketed. (See Figure 11).

### 4. European chafer control.

- a. Products regulated by European chafer quarantine moving safely from the regulated area. During 1958 regulated products worth more than 24 million moved safely under Federal-State certificate from the infested area in 5 New York counties, where about 1,100 square miles are known to be infested with the European chafer. Nursery stock, soil, sand, and gravel are the principal products under regulation. Shippers bear the entire cost of fumigation or soil treatment with insecticides under Federal-State supervision.
- b. Newly-found infestations. Intensified surveys, largely within the regulated area, to delimit actually infested properties revealed an additional 80,000 acres to be harboring European chafers. About 2,100 additional acres were found to be infested beyond the area under Federal quarantine regulation. The development of an effective survey method is a continuing problem. Blacklight traps tested more thoroughly this year gave encouraging results. Research on this and other phases of survey technique is being continued. Figure 12 shows the areas of known infestation.

- c. Soil treatments with insecticides eliminate chafers. Since 1955, more than 2,800 acres have been treated with soil insecticides to destroy larvae and adults in nurseries and outlying spotted infestations.
5. Fire ant eradication program making steady progress. Although some delays and difficulties were encountered in the early stages of the program, substantial progress has been made. As of October 1, 1958, 517,040 acres had been treated in 9 States--Alabama 179,523, Arkansas 18,587, Georgia 114,258, Louisiana 157,600, South Carolina 7,447, Florida 19,746, acres, Mississippi 12,465 acres, and Texas 5,847 acres. The latter three States were delayed in starting their program. Known infestations in North Carolina, totaling 1,567 acres, have been treated in their entirety.

The outlying infestations in all States were given first attention to prevent further spread. More than 60 of these have now been treated.

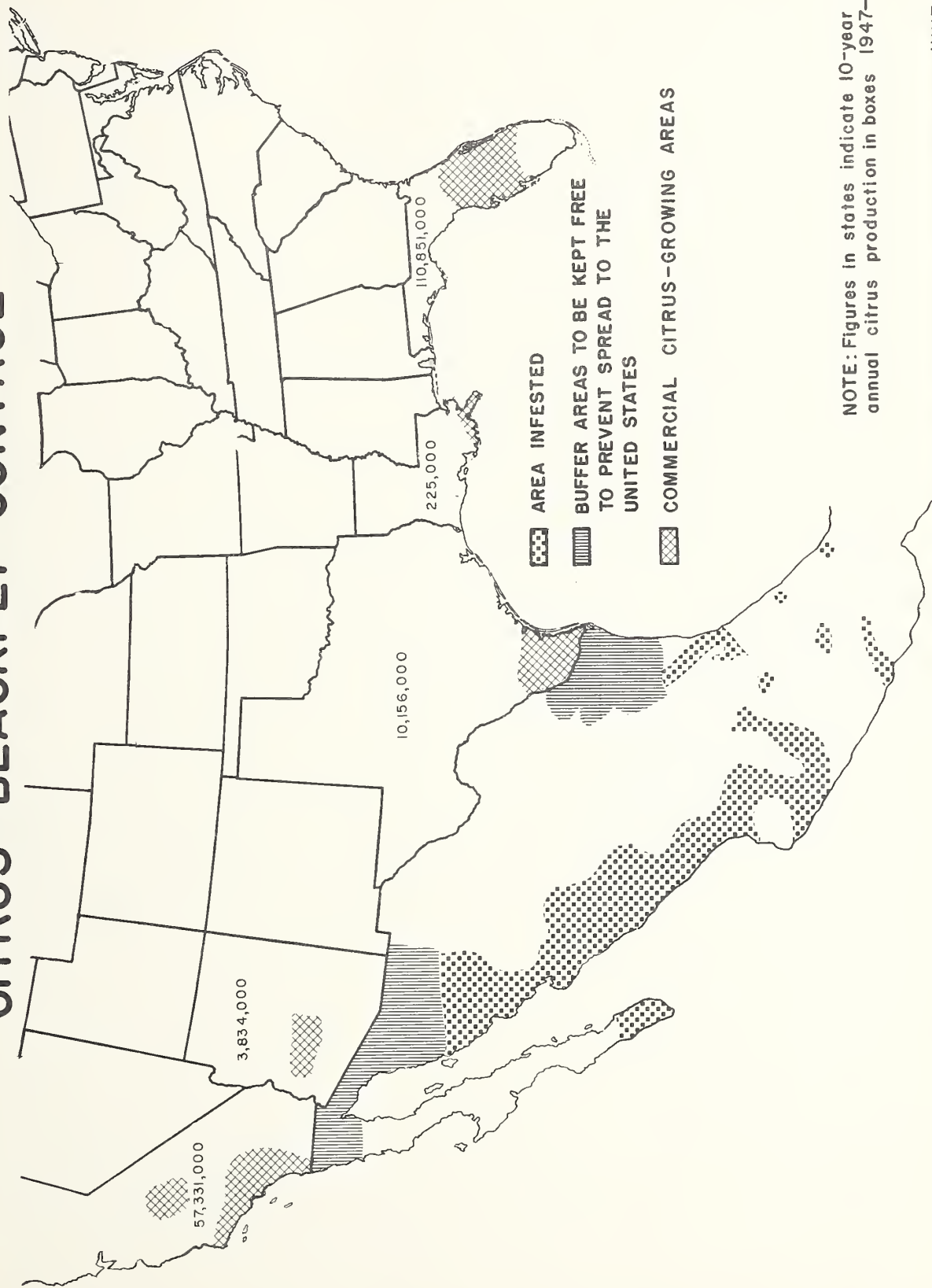
To help prevent the spread of the imported fire ant, the Department invoked a Federal quarantine which became effective May 6, 1958. Supporting regulations restrict the interstate movement of materials that constitute a hazard of spread. Parallel State quarantines regulate movement of hazardous materials. (See Figure 13.)

#### 6. Golden nematode control.

- a. New infestations of golden nematode continue at a low level. During fiscal 1958 field surveys on Long Island added only 6 new properties, totalling 524 acres, to the infested area. Periodic surveys conducted since 1945 in United States potato-growing districts have failed to reveal the presence of the pest outside of Long Island, N.Y. Since the golden nematode was discovered on Long Island in 1945 a total of 13,671 acres has been found infested. As of June 30, 1958, 7,733 of these acres had been permanently removed from agriculture for housing developments. The cooperative Federal-State program has confined this pest to a relatively small area on Long Island.
- b. Methods improvement work continues in an effort to find possible chemical means of eradicating the golden nematode. Through the use of new and improved application techniques employing approved nematocides there is a strong indication that the golden nematode can be eliminated from an infested field. A field-scale test, inaugurated in 1956 in an effort to eradicate the golden nematode through the use of nematocides, was continued and expanded in 1957 and 1958 crop years. Following the 1956-57 potato crops, soil samples were collected from the treated fields and no living golden nematodes were found. One potato field has grown three crops and three fields have grown two crops of potatoes. Samples will be collected and examined for living nematodes following the 1958 crop. These tests will be continued in 1959. (See Figure 14.)



# CITRUS BLACKFLY CONTROL



NOTE: Figures in states indicate 10-year average annual citrus production in boxes 1947-1956

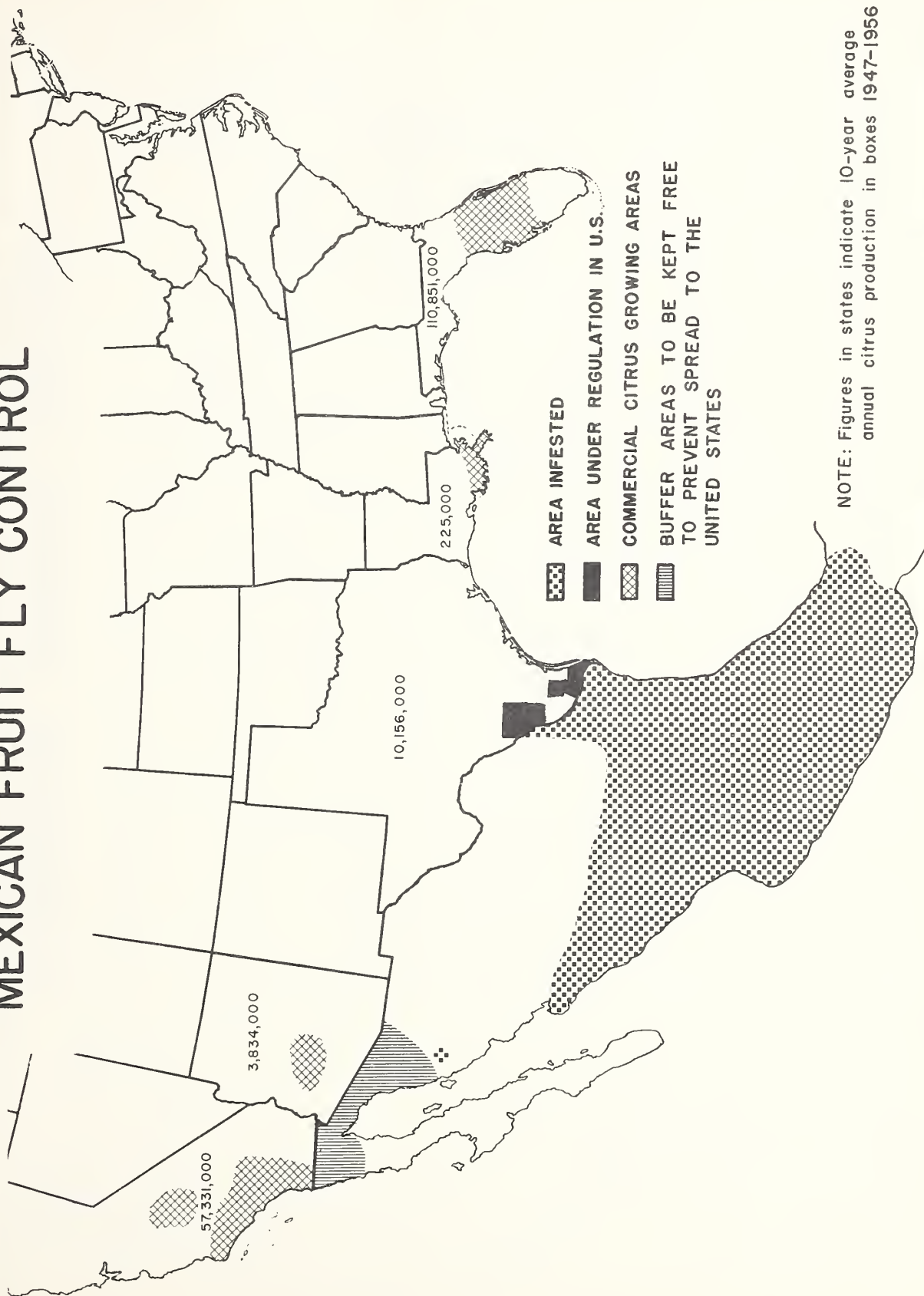
JUNE 30, 1958

FIGURE 10





# MEXICAN FRUIT FLY CONTROL



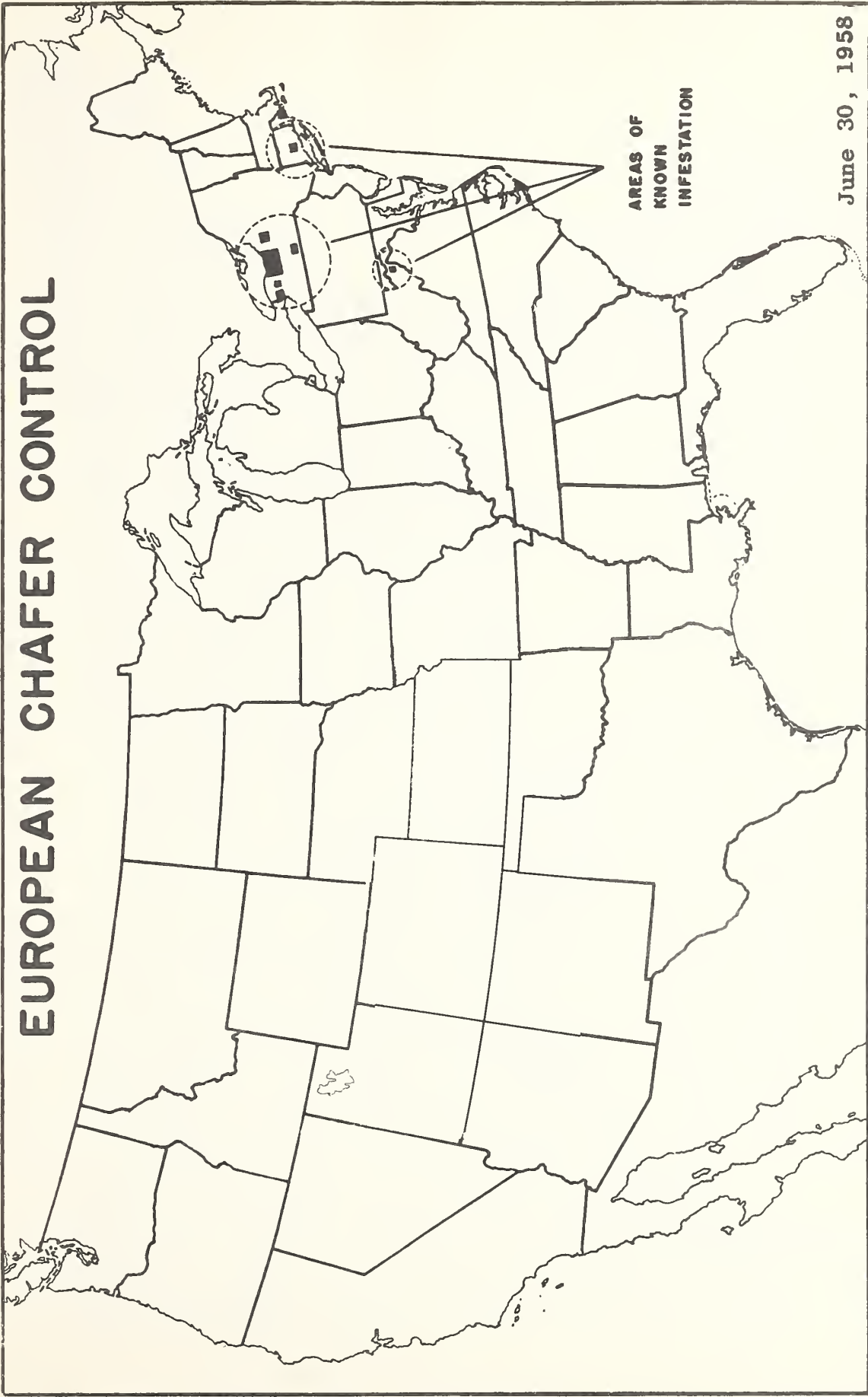
NOTE: Figures in states indicate 10-year average annual citrus production in boxes 1947-1956

FIGURE 11





# EUROPEAN CHAFER CONTROL



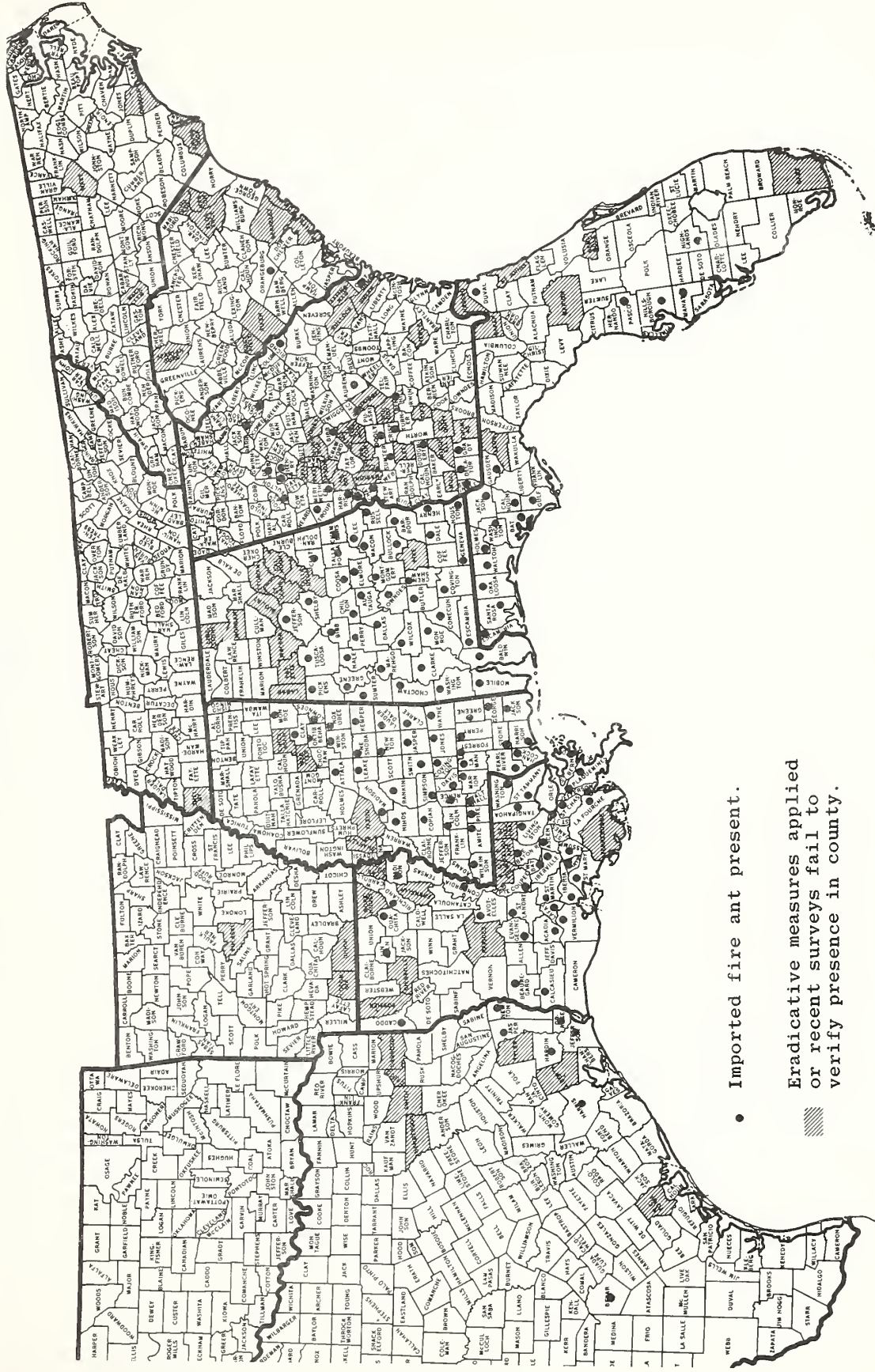
June 30, 1958

U.S. DEPARTMENT OF AGRICULTURE

FIGURE 12



# STATUS OF IMPORTED FIRE ANT



• Imported fire ant present.

▨ Eradicative measures applied or recent surveys fail to verify presence in county.

September 30, 1958

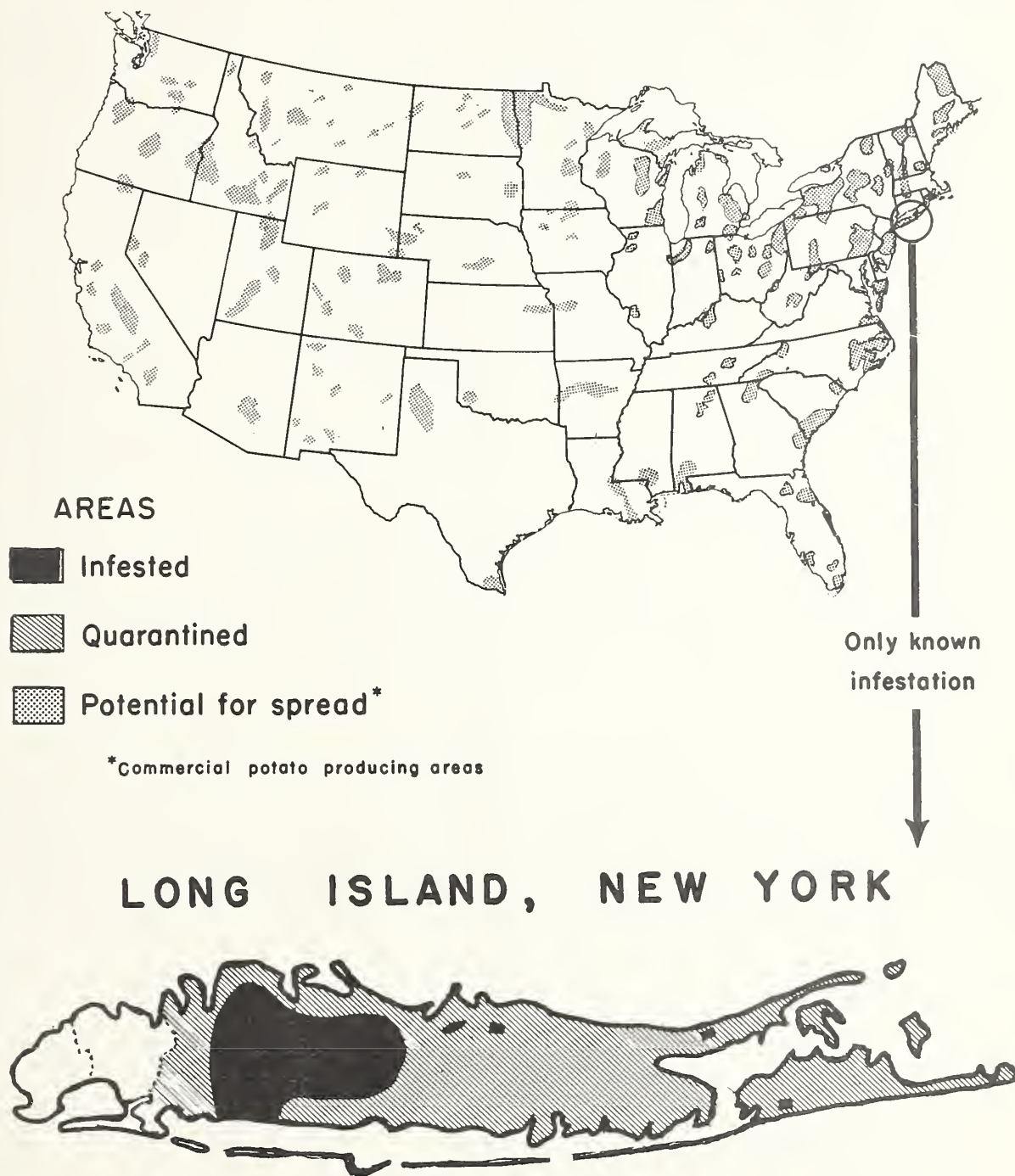
AGRICULTURAL RESEARCH SERVICE

FIGURE 13





# GOLDEN NEMATODE CONTROL



June 30, 1958

FIGURE 14





7. Grasshopper and Mormon cricket control.

- a. Spring weather in 1958 favorable to development of serious infestations. Spring weather favored maximum survival of the newly hatched nymphs. Because of this, many of the areas with a relatively low potential in 1957 developed economic infestations in 1958. In Montana, where a serious infestation was expected, a wet, cold spring over a prolonged period relieved the situation.
- b. Several million acres treated for grasshopper and Mormon cricket control. During the 1958 season 4,350,219 acres of range, roadsides, idle land, and wasteland were treated in Federal-State cooperative control programs in 13 Western States. This compares with 1,738,651 acres treated in 1957. The greatest acreage treated was in Colorado with 2,156,436 acres, followed by Texas with 931,418; Oklahoma 242,538; Kansas 210,636; and Wyoming 302,822, and smaller acreages in Arizona, Idaho, Montana, Nebraska, New Mexico, and Nevada. (See Figure 15.)
- c. Mormon cricket control at the same level as 1957. In 1958, 73,203 acres of rangeland were baited to control Mormon crickets in three States. This compares with 73,916 acres baited in 1957. Rolled wheat impregnated with aldrin was used to bait 1,560 acres in Idaho; 38,104 acres in Nevada; 26,258 acres in Utah; 7,255 acres in Montana; and 26 acres in Wyoming. Surveys conducted during early summer revealed incipient infestations in Idaho and Wyoming. These will be kept under observation during 1959 and control applied if necessary.

8. Gypsy moth eradication.

- a. Continuance of gypsy moth program confirmed by court action. Shortly after gypsy moth spraying began in New York in the spring of 1957, fourteen residents of Long Island, New York, sought an injunction to prevent the State of New York and the Department from spraying their properties. At a hearing on May 15, 1957, the plaintiffs' request for a temporary injunction was denied, but the U. S. district judge did not dismiss the action. The case came to trial at Brooklyn, New York, on February 10, 1958. On June 23, 1958, the Court rendered a decision in favor of the State of New York and the Department.
- b. Eradication measures for gypsy moth proved effective. The eradication program during fiscal year 1958 involved the aerial treatment of 495,000 acres in Pennsylvania. In New York two small isolated infestations on Long Island and other isolated spots in the suppressive area of that State were treated with ground equipment. Also 2,305 acres of heavily infested woodlands were treated by the New York State Conservation Department. State and local agencies treated 10,808 acres in Connecticut, and in Massachusetts the State applied treatment to 9,700 acres. Smaller areas were also treated in Maine and Rhode Island. Altogether 518,232 acres received treatment by Federal and other agencies.

Gypsy moth infestations in Michigan required spraying of 18,880 acres in 1957. No moths were trapped following the treatment. In 1958, however, 13 moths were trapped 2 miles outside of the sprayed area.

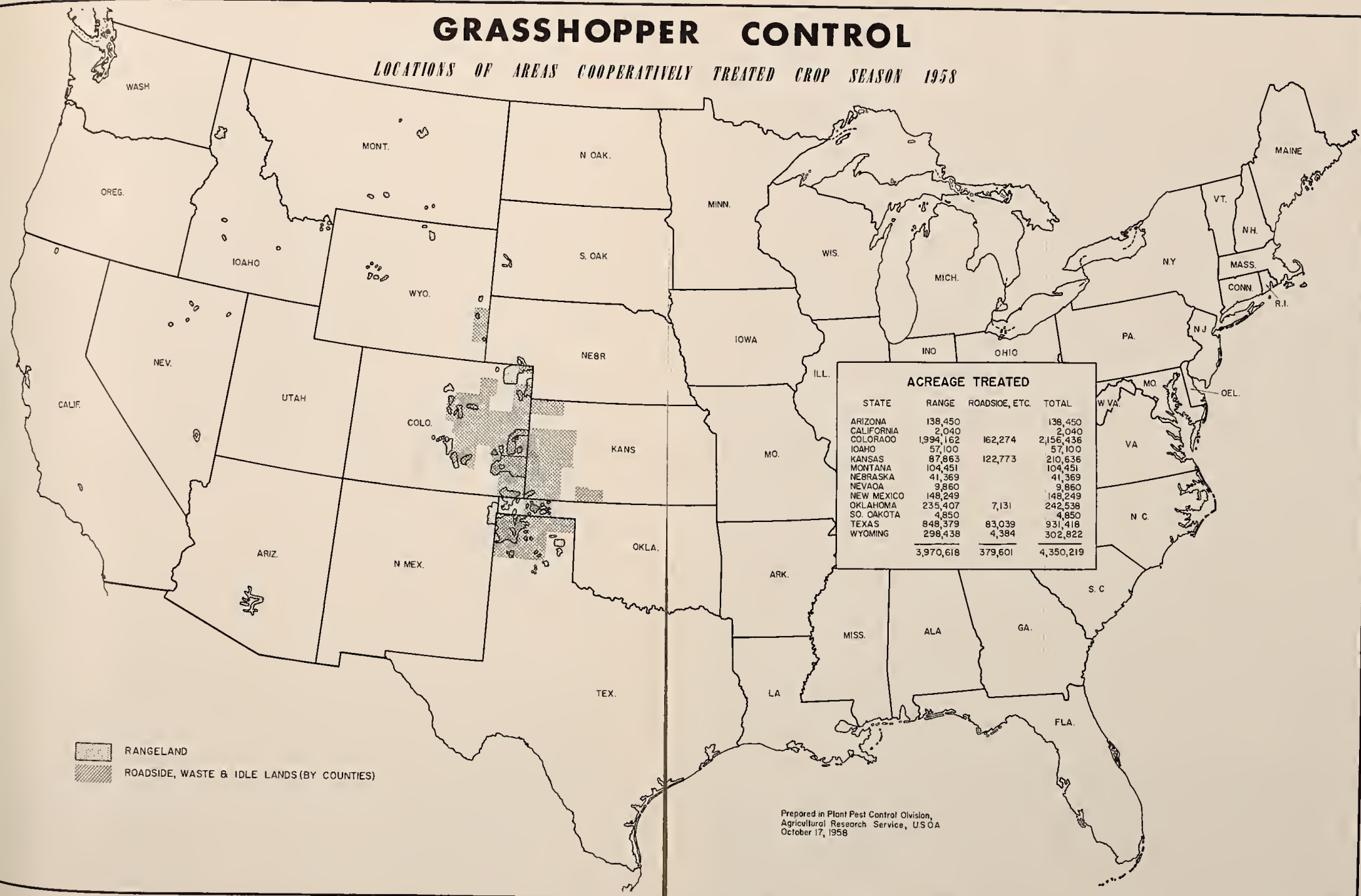
- c. Efforts to improve gypsy moth eradication methods continued. In a continuing effort to improve methods for gypsy moth eradication, some 40 chemical compounds were tested this year in the laboratory and the most promising of these were examined in field plots. Those that proved most effective were checked for persistence on forage and pasture grass, for residue in milk, and for toxicity to fish. It would appear that of those tested at least two will be useful for gypsy moth work.
  - d. Treated areas being protected by quarantine regulations. A suppressive area of approximately 5,963 square miles in New York (roughly comprising the area treated in 1956-57 plus Delaware County, N. Y.), is being retained under regulations until there is positive assurance that the gypsy moth no longer exists there. Regulations prevent noncertified commodities from entering from infested areas to preclude reinfestation through commercial channels. Nine hundred square miles in Pennsylvania and 491 square miles in New Jersey are under State regulations. About 63,357 square miles of land are under Federal regulations in New England and eastern New York. (See Figure 16).
9. Eradication of Hall scale seems assured. The last infestation found in the United States was in June 1956. Continuous delimiting surveys have not revealed new infestations. In fiscal year 1958, 48,222 host plants were inspected on 755 properties in 56 city blocks. To complete the clean up and treatment scheduled in the area where infestation was found in 1956, 88 host plants were removed; and 1,761 trees were fumigated. The surveys will continue for several years to assure complete absence of this pest. (See Figure 17).
  10. Eradication of hoja blanca disease of rice. This destructive virus disease of rice was found for the first time in the United States near Belle Glade, Florida, in the fall of 1957. It had been under observation for several years in Cuba and Venezuela where it is known to reduce yields by as much as 50%. Varieties of rice now grown extensively in the United States are susceptible to the virus. The Department and the Florida State Plant Board immediately applied an insecticide on infected rice and other plants in an area of about 2,469 acres with the objective of killing all suspected vectors. The plants were then chopped down and plowed under in an effort to eradicate the disease.

During 1958 all volunteer rice plants were destroyed and insecticidal sprays applied to the fields where infestation was found as well as to their environs to kill the leafhopper vectors. Arrangements were made whereby no rice will be planted in this area during the calendar year 1958. Surveys were continued throughout the year of all known rice growing areas to detect presence of the disease and the vector.



# GRASSHOPPER CONTROL

LOCATIONS OF AREAS COOPERATIVELY TREATED CROP SEASON 1958



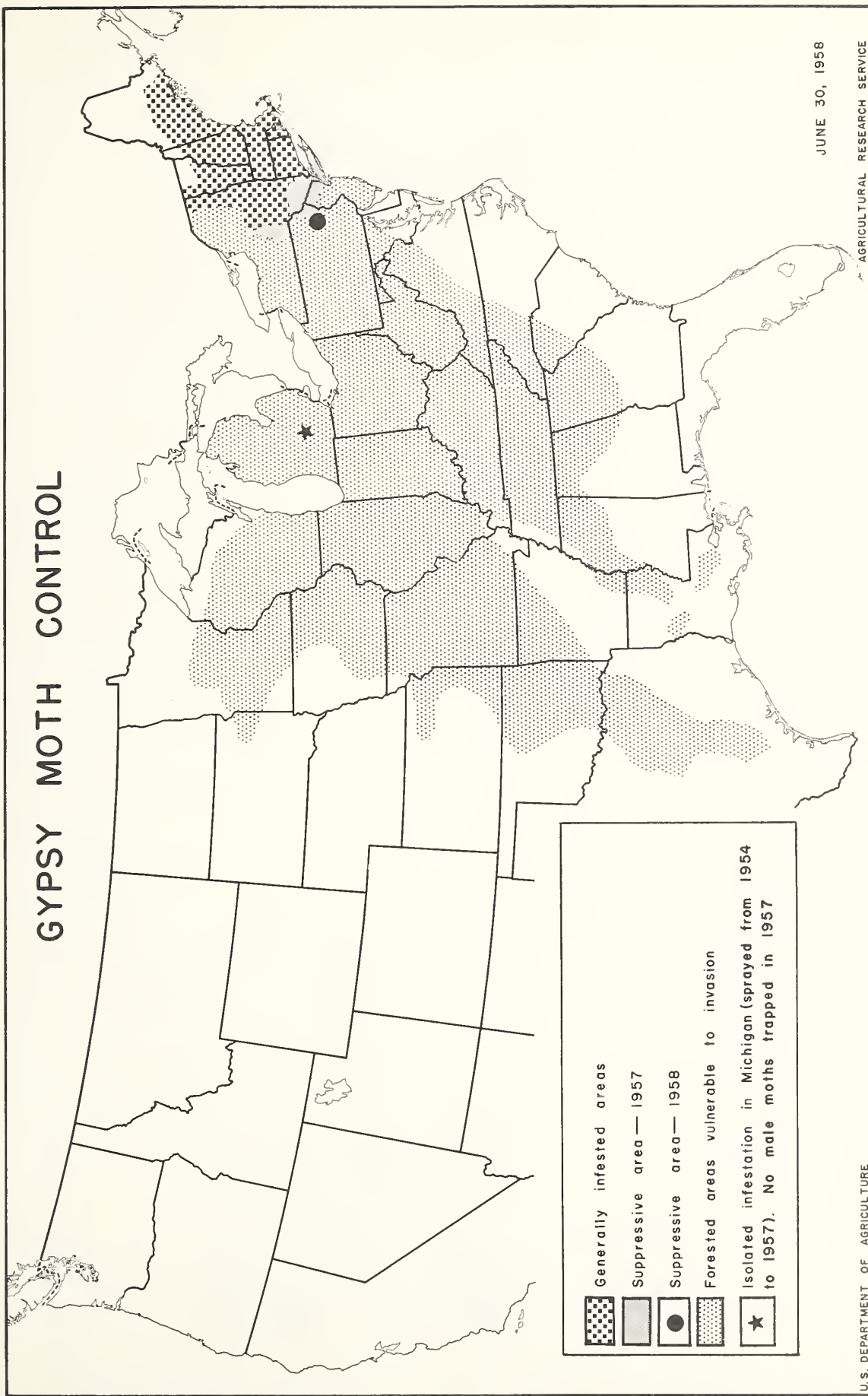
Prepared in Plant Pest Control Division,  
 Agricultural Research Service, USDA  
 October 17, 1958

FIGURE 15





# GYPSY MOTH CONTROL



JUNE 30, 1958

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FIGURE 16





# HALL SCALE ERADICATION

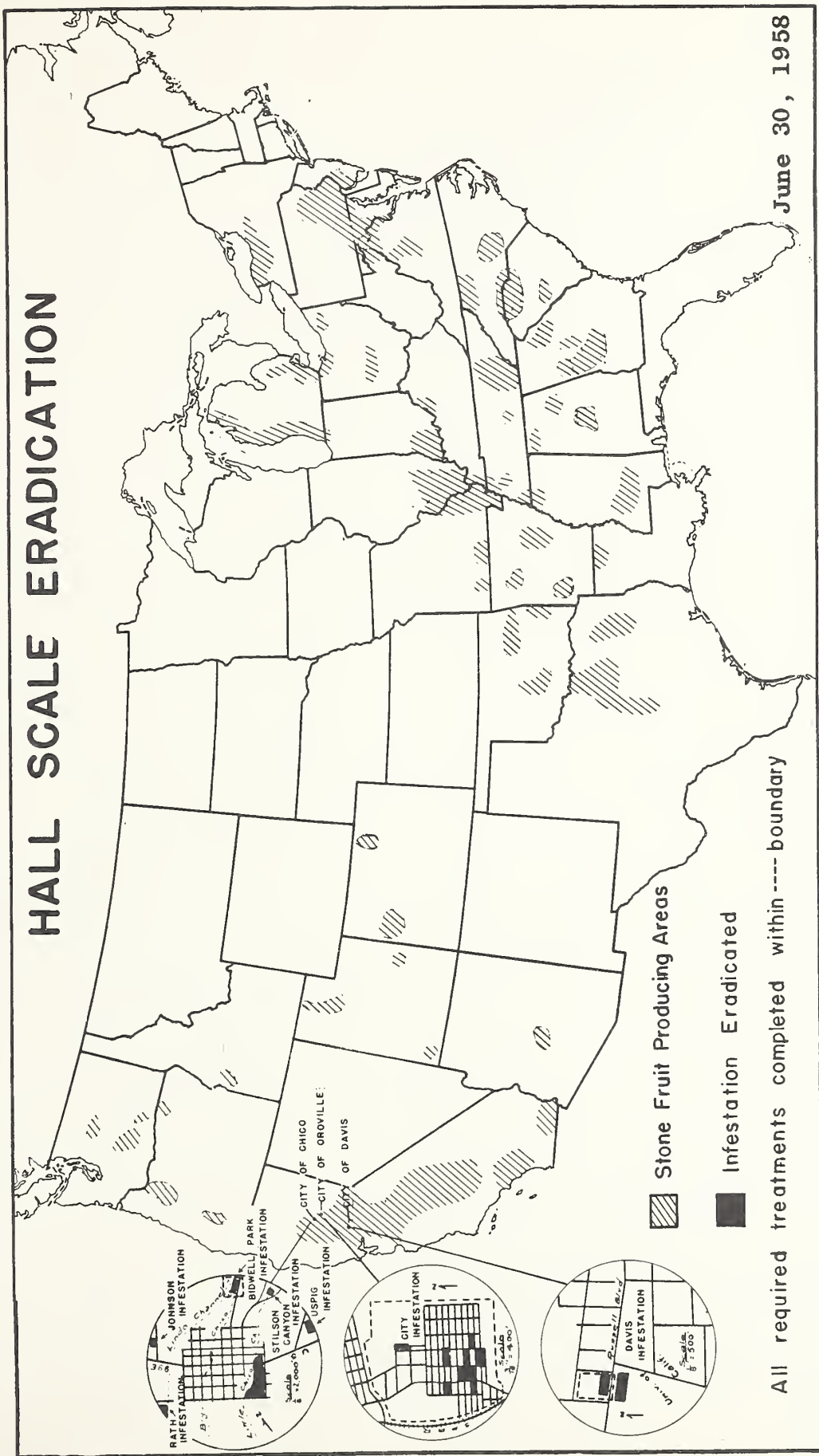


FIGURE 17



The Florida Everglades Experiment Station, Florida Plant Board, the Crops Research and Plant Pest Control Divisions are cooperating to eliminate this serious threat to the Nation's rice production.

In late September the insect vector and disease were located near Bay St. Louis in the State of Mississippi. Three fields involving approximately 68 acres were found infested. Suppressive measures were instituted and a spray has been applied to 250 acres as a buffer treatment around infested fields. Spraying will continue on a 10 day schedule until winter weather kills the insect vectors. Surveys are continuing in Mississippi and have been expanded to rice growing areas in Arkansas, Louisiana, and Texas.

11. Timely economic insect information assembled and published. In cooperation with agricultural agencies in all the States, insect information is assembled and published in the Cooperative Economic Insect Report, which is mailed weekly to approximately 3,000 interested workers in agriculture and related industries. The publication of illustrated articles on "Insects not Known to Occur in the United States," has had wide distribution among State and Federal regulatory agencies. Special survey reports on the status of major insect pests such as grasshoppers, fire ants, European corn borer, and cotton insects are widely used by growers and industry.

12. Federal Insecticide, Fungicide, and Rodenticide Act.

- a. Registration activities increase. A significant increase occurred in the registration of new products in the fiscal year 1958-- 4,600 as compared with 4,222 in 1957. In addition, 3,554 amended labels and 1,822 distributors' brands were accepted for registration. On June 30, 1958, approximately 42,600 registered labels were on file.

During the year registrants of products accepted in the fiscal year 1953 were notified that their initial registrations would expire in 1958. As a result of these notifications, 927 registrations were canceled, and approximately 2,600 products were reregistered.

- b. Enforcement work continues. Of the 1,301 samples of economic poisons examined, 251 warranted citation and/or seizure. Less serious violations for 126 products were corrected through correspondence. With the cooperation of the Customs Service, 184 shipments offered for importation were reviewed and 80 of these were sampled. Five shipments detained due to failure to comply with the Act, were later released when brought into compliance.
- c. Activities under the Miller Bill (PL 518) continue to expand. At the end of the fiscal year 1958, 124 petitions for tolerances for pesticide chemicals were reviewed and appropriate certification furnished the Food and Drug Administration as to the usefulness of the particular chemical and the probable residues resulting when used according to directions. A total of 1,918 pesticide



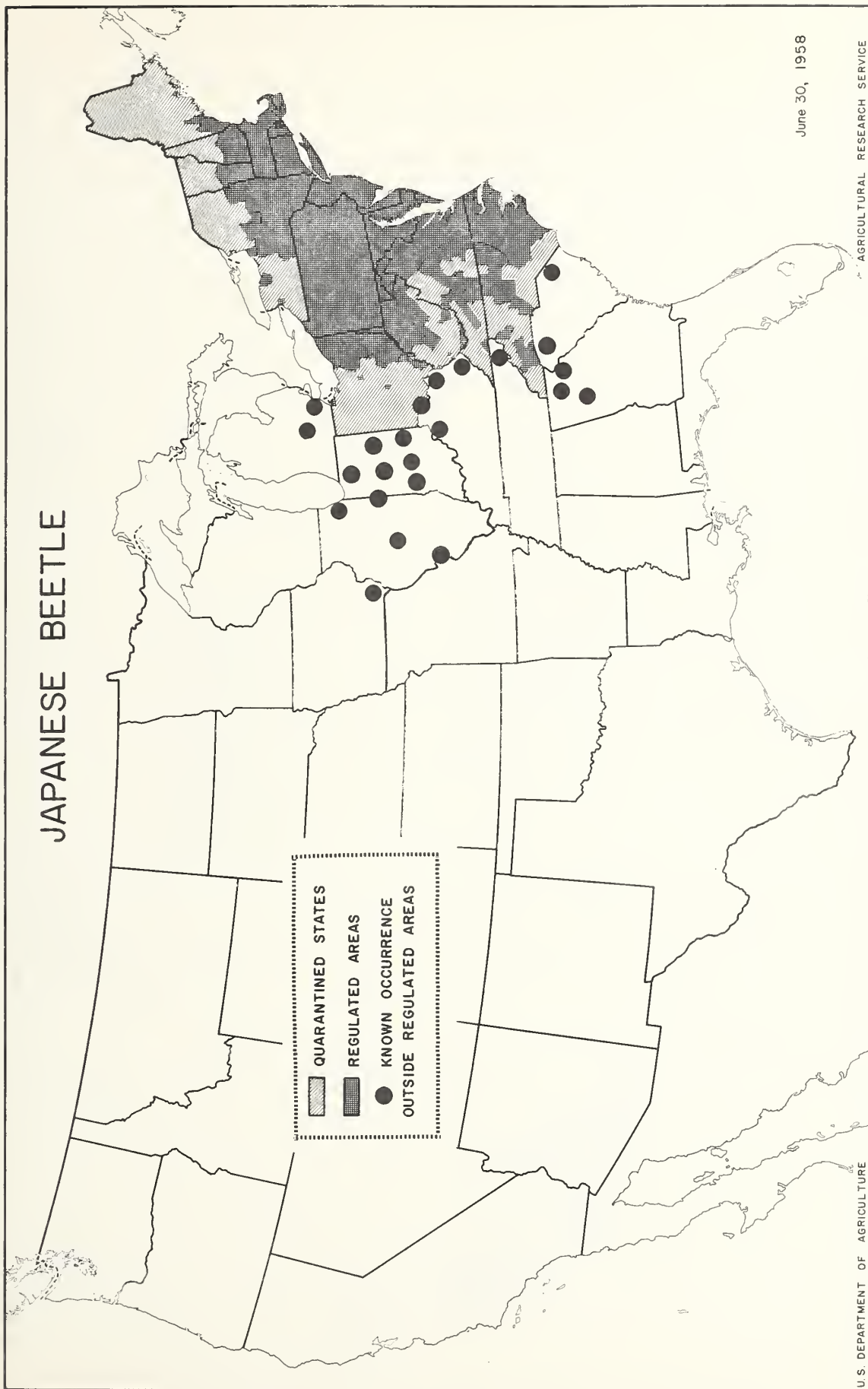
chemical uses registered under the Federal Insecticide, Fungicide, and Rodenticide Act is now covered by tolerances. These uses involve 92 pesticide chemicals. In addition, 24 chemicals have been exempted from the requirement of a tolerance for fresh fruits and vegetables, and eight have now been recognized as safe on raw agricultural commodities.

13. Japanese beetle control.

- a. Survey shows spread beyond federally regulated area. New infestations of Japanese beetle totaling nearly 160,000 acres have been found in Georgia, the largest areas being at Atlanta and Dahlonega. Extension of infestation was revealed at Cincinnati, Ohio, and South Bend, Indiana. Important infestations are known at Kentland, Indiana, and Sheldon, Illinois. About 100,000 to 150,000 infested acres have been observed in northwestern South Carolina. Several relatively new infestations were discovered in eastern Tennessee, Pike County, Kentucky, at Lafayette and Hammond, Indiana, and at Chicago and Peoria, Illinois. (See Figure 18).
- b. Protective measures. Year-round regulation of soil and plants to prevent spread of the soil-inhabiting forms of the Japanese beetle from the quarantined area was applied to 973 shippers who move products valued at nearly \$37 million annually. These protective measures are for the benefit of the public in noninfested States.
- c. Control measures. During the spring of 1958 control measures were applied principally by aircraft to three important outlying infestations. These were at Fort Madison, Iowa, 2,000 acres; East St. Louis, Illinois, 4,000 acres; and Sheldon, Illinois, 8,195 acres. An additional 6,918 acres were soil treated and 3,325 acres foliage treated in several other States, mostly in support of regulatory operations.

14. Khapra beetle eradication progress encouraging. During fiscal 1958, 22,296 properties were given initial inspection and 30,517 sites were reinspected in 32 States and in Mexico. Of the sites inspected, 105 were found to be infested, involving buildings with a volume of 13,398,334 cubic feet. Seven of these properties were reinfestations. Fumigation treatment was applied to 113 properties with 14,422,880 cubic feet. In the United States the khapra beetle has not been found outside of Arizona, California and New Mexico. Infestations have been treated in the States of Baja California and Sonora in Mexico and in September 1958 the beetle was found in storages at Guadalajara, about 1000 miles south of the border. This is the first known infestation in the interior of Mexico. The Department is working with Mexican officials in developing a plan of eradication. (See Figure 19).

# JAPANESE BEETLE



June 30, 1958

U.S. DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

FIGURE 18





# KHAPRA BEETLE ERADICATION

The khapra beetle has been found damaging wheat, barley, rye, flax, peas, alfalfa, and sorghum in this country. It is known also to attack maize and rice. More than 8 billion beetles have been reported from the United States and Mexico. All of this grain or seed is placed in storage on or off the farm at some time before it is consumed. This insect, which builds up rapidly and resists ordinary control measures, has a high potential for spread to storage facilities throughout the United States.

Infestation found in  
warehouses, mills, and  
farm storages in 27  
U.S. Counties

AREAS OF KNOWN INFESTATION

610 PROPERTIES INFESTED (U.S. & Mexico)

(149 million cu. ft. of storage volume)

602 PROPERTIES TREATED (U.S. & Mexico)

(148 million cu. ft. of storage volume)

Note: NUMBERS (Above line=sites infested, below line=sites treated)

330  
327

201  
198

60

73  
71

JUNE 30, 1958

Figure 19



The following table reflects the work accomplished since the initiation of the program in 1955.

Khapra Beetle

As of September 30, 1958

WORK ACCOMPLISHED FROM BEGINNING OF PROGRAM:

<u>State</u>	<u>Infested</u>		<u>Treated</u>		<u>Remaining</u> <u>Sept. 30, 1958</u>	
	<u>No. Props.</u>	<u>Cu. Ft.</u>	<u>No. Props.</u>	<u>Cu. Ft.</u>	<u>No. Props.</u>	<u>Cu. Ft.</u>
Arizona	205	53,530,966	205	53,530,966	-	-
California	330	80,333,728	329	80,033,728	1	300,000
New Mexico	6	440,920	6	440,920	-	-
Republic of Mex.	81	26,464,505	78*	15,214,505	5	11,250,000
Total	622	160,770,119	618	149,220,119	6	11,550,000

\*Two were reinfestations

15. Mediterranean fruit fly infestation in Florida apparently eradicated.

The Mediterranean fruit fly infestation found in Florida in May of 1956, and which ultimately was found spread over 700,000 acres in 28 counties, has apparently been eradicated. The last fly was trapped on November 26, 1957. Intensive trapping since that time has been negative. The last aerial application of bait treatment was applied on Snead's Island in Manatee County, February 25, 1958. This marked the completion of the spray program which began in June 1956. An aggregate of about 7 million acres required spray treatment to complete the job.

As of June 30, 1958, the Mediterranean fruit fly trapping program included operation of 32,258 traps in Florida; 32 combination Mediterranean fruit fly-melon fly traps in Georgia at all known points from which overseas shipments are received; 106 traps in the New Orleans district; 50 traps in George, Hancock, Harrison, and Jackson Counties, Mississippi; and 25 traps baited with a combination fruit fly lure in Cameron County, Texas. Figure 20 shows the status of the Mediterranean fruit fly program.

A trapping program at about the present level will be necessary during fiscal year 1960.

16. Phony peach and peach mosaic eradication.

a. Incidence of phony peach disease remains low. During the fiscal year 1958, 5,324,956 peach trees in seven Southeastern States were inspected, 29,679 of which were found infected with phony disease. These figures indicate the same low incidence of phony disease, 0.5%, as was found in 1957. This percentage of infection may be compared with 0.7% in 1954; 1.3% in 1953; and 2.5% in 1952. (See Figure 21).



All infected trees found in 1958 have been removed by the owners. Complete compliance by the growers in promptly removing infected trees together with the continued removal of wild plum, a reservoir of phony infection, in the vicinity of peach orchards and the careful annual survey appear to be holding the disease at the present low level.

- b. Results continue favorable in peach mosaic eradication. During the year, inspection was made of 2,803,640 trees of which 3,114 were found infected with peach mosaic. This is an over-all disease incidence of 0.1% in 1958 as compared to 0.5% in 1957; 0.7% in 1954; 1.3% in 1953; and 2.5% in 1952. (See Figure 22). The low incidence of peach mosaic infection now present has resulted from the intensive survey and tree removal program.

17. Pink bollworm control.

- a. Pink bollworms spread east and west of previously known infestation boundaries. In spite of a concerted Federal-State effort to contain the pink bollworm, new infestations appeared this year in Arkansas, Louisiana, and Arizona east and west respectively of the previously known infestation boundaries.
- b. Infestation light on eastern periphery. New infestations outside quarantined area were discovered during October 1958 in Ashley, Drew, Grant, Faulkner and White Counties of Arkansas; and Lincoln, Grant, Rapides, and Union Parishes of Louisiana. These new finds extended the eastern boundary of the known pink bollworm infested area. New infestations were found outside the regulated area of both States which would indicate a general eastern spread this year. Even considering these new infestations, the lightness of the infestation in Arkansas and Louisiana indicates a two-fold progress in the over-all pink bollworm program. First, the efforts to eradicate this pest in these States continues to represent full cooperation of the growers and industry. Second, the lightness of infestation can be attributed in part to continuing efforts to suppress population in central and eastern Texas. In Arkansas as of late October 1958, about 90 pink bollworms had been found in the 1958 crop in 15 counties. Of this number 39 specimens came from Little River County bordering Texas and Oklahoma. In Louisiana 45 to 50 pink bollworms were found in 12 parishes.
- c. Infestation discovered again in Maricopa County, Arizona. In July 1958 a heavy infestation was discovered near Gila Bend in Maricopa County and in September the pink bollworm was found in Pinal County. As of October 16 the infested and exposed area was estimated at more than 160,000 acres. A total of 91 light traps and 7 gin trash machines are being operated in the State to completely delimit the infestation.

Following the discovery of the pink bollworm in Arizona, plans were formulated promptly to inaugurate an eradication program. This decision was made in consultation with the Commissioner of Agriculture and Horticulture, the Cotton Producers Association,

# MEDITERRANEAN FRUIT FLY ERADICATION AND REGULATORY PROGRAM

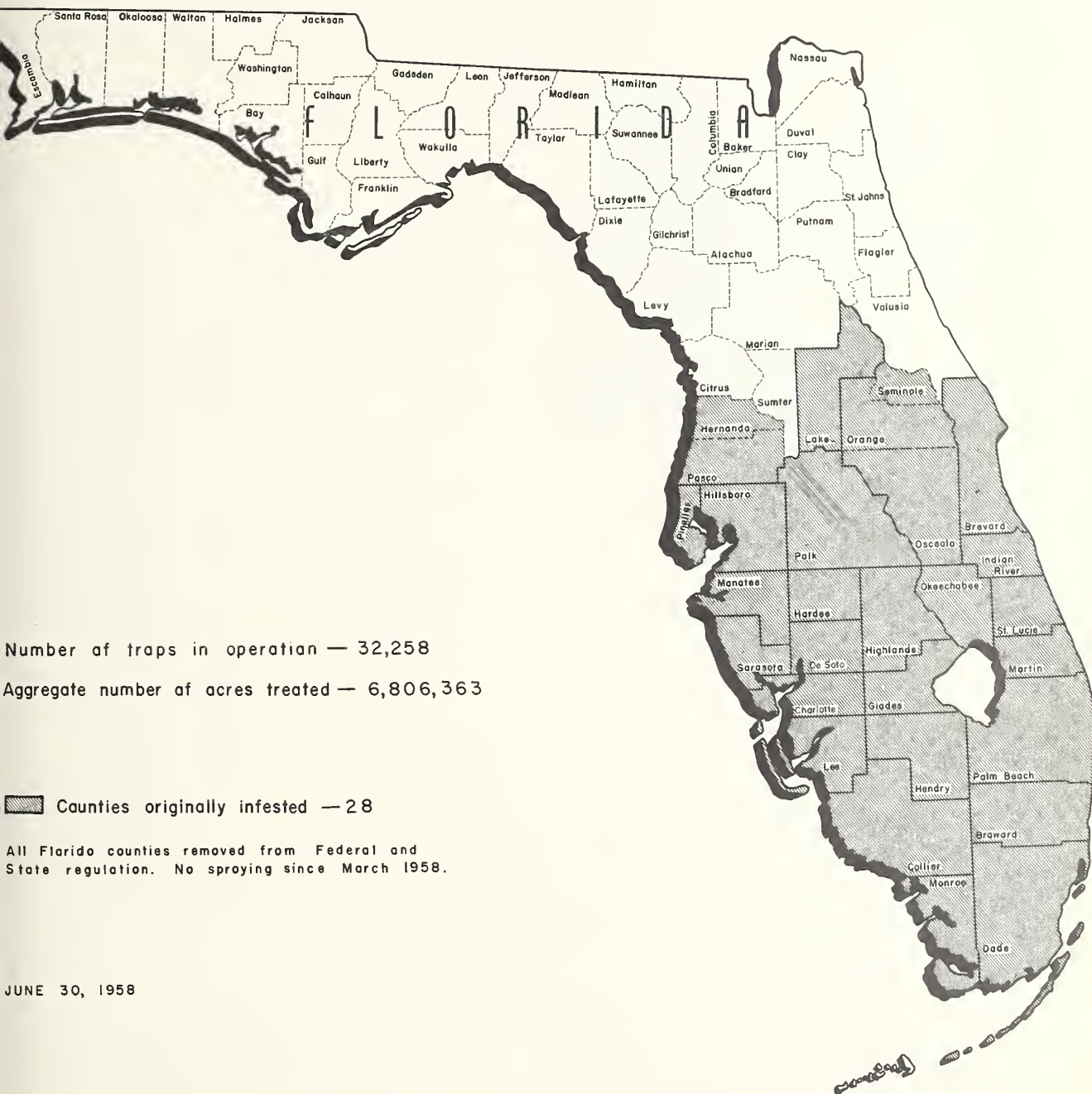


Figure 20





# PHONY PEACH CONTROL

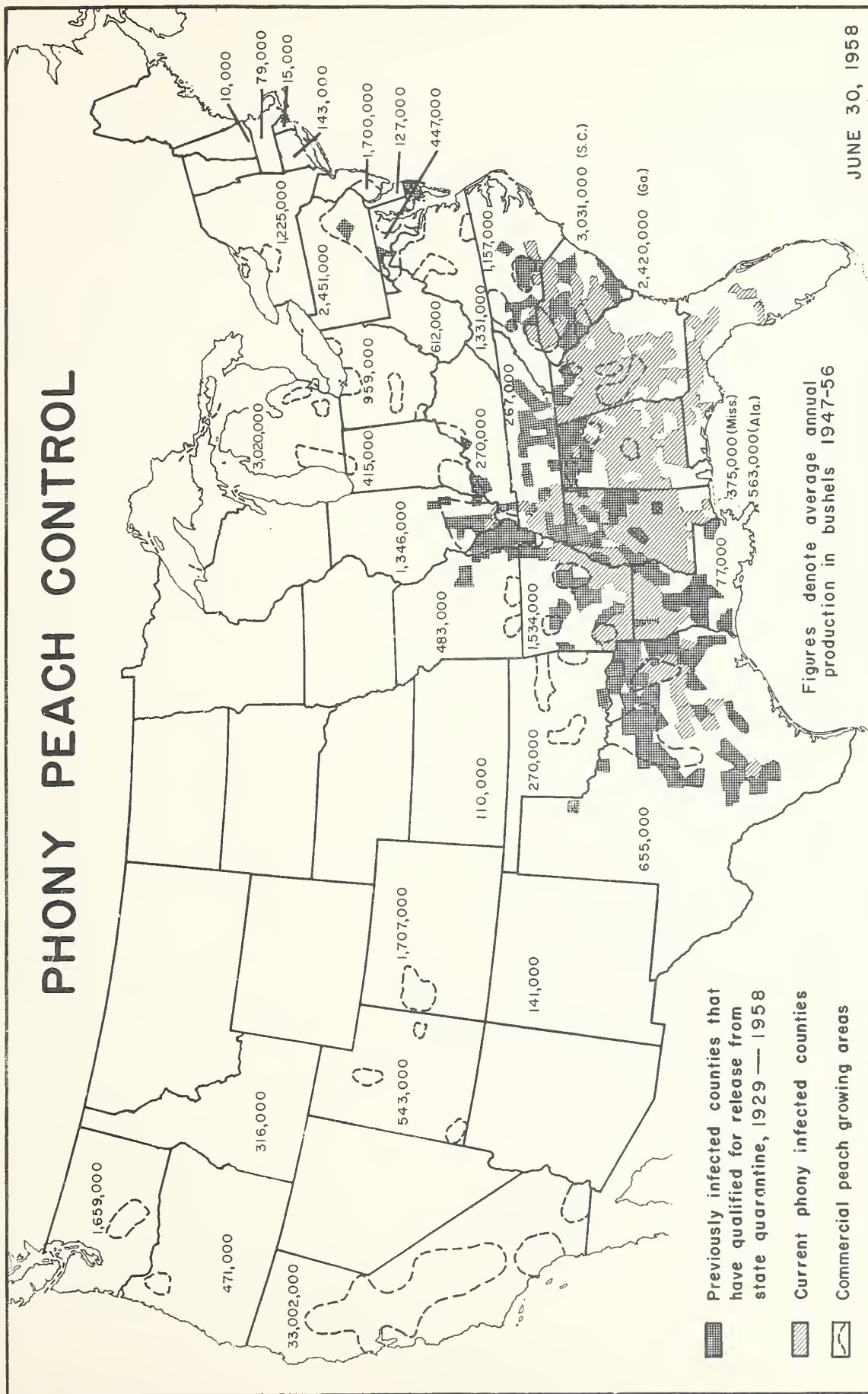
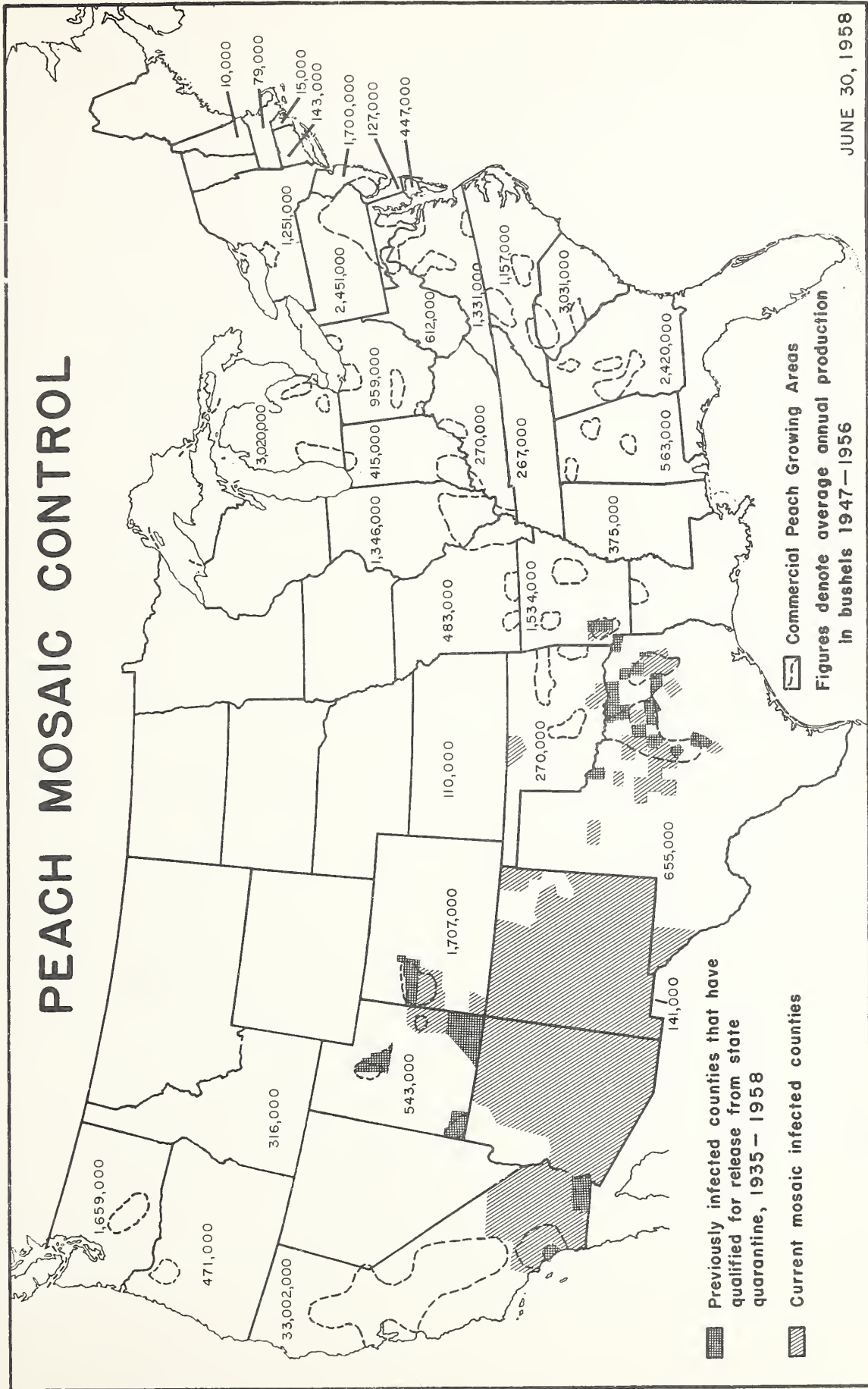


FIGURE 21



# PEACH MOSAIC CONTROL



JUNE 30, 1958

FIGURE 22





and the cotton industry, primarily ginning and oil mill interests. The plan presently calls for applications of an effective insecticide at the recommended rate at weekly intervals to the 1958 crop for the period when the bolls are susceptible to pink bollworm attack; defoliation subsequently to hasten maturity and opening of top bolls; shredding of stalks following harvest with an improved machine using a device to load into trailers the crop residues for burning; plowing deep to cover shattered bolls and roots; and fall irrigation recommended to accelerate decomposition of bolls. No stub cotton will be grown in 1959, and any volunteer plants in designated areas will be destroyed. Cotton will be planted during period prescribed by the Commission. Beginning in June 1959 insecticides will be applied during period when fruit is susceptible to oviposition by the female moths. The fall program carried out in 1958 will be repeated on infested acreage in 1959. All of Maricopa and Pinal Counties have been placed under State regulation with similar Federal action to follow shortly. (See Figure 23).

- d. Regulatory measures continue effective. Heavy infestations in south Texas, extreme western Texas, and southeastern New Mexico emphasize the importance of enforcement of treatment requirements for certification of products. Compliance by the shippers has been excellent. Since the program in Arizona, Arkansas, and Louisiana has had eradication for its objective the same stringent precautions have been required in movement of seed and other products into the regulated portions of those States from the generally infested States as though destined for States such as California, Mississippi, and Southeastern States where pink bollworm has not become established.
- e. Heavy damage only in limited areas. Although infestation is general in much of Texas and southeastern New Mexico, aggressive measures by the farmers continue to hold heavy damage to a limited acreage in certain locations. These suppressive measures include uniform planting and stalk destruction in State mandatory control zones. In addition, well planned and executed insecticide applications prevent population buildups during the fruiting of the cotton.
- f. Cooperation with Mexico. The work in northeastern and central Mexico continues to be of significant importance to success of suppression activities in Texas. The assistance rendered to the office of the Defense of Agriculture, Mexican Department of Agriculture, in northwest Mexico is designed to prevent pink bollworm from becoming established in the Mexican States of Sinaloa, Sonora, and Baja California, and in the Imperial and San Joaquin Valleys of California, and the Yuma Valley of Arizona. The appropriate officials of Mexico and the cotton growers and industry, and the Department maintain excellent working arrangements on all phases of the cooperative undertaking.

18. Soybean cyst nematode survey continued. During the past 12 months, surveys have indicated some local extension of known infestations, but have revealed no infestation on some 288,000 acres of land inspected in 18 other soybean-producing States. (See Figure 24).

The status of infestations as of June 30, 1958, is as follows:

<u>State</u>	<u>Number of counties</u>	<u>Number of properties</u>	<u>Total infested acres</u>
Arkansas	2	110	4,149
Kentucky	1	6	785
Mississippi	1	1	300
Missouri	3	99	3,568
North Carolina	3	110	2,494
Tennessee	4	126	7,214
Total	14	452	18,510

Damage to soybean plantings from the nematode has been evident in North Carolina since the infestation was found in 1954. In 1958, symptoms appeared and quickly developed in spots throughout some 25 fields in the four infested counties of Tennessee. Damaged plantings have also been observed in Missouri and Kentucky. This dwarfing, yellowing, and even death of plants clearly indicates severe reduction in bean yields in the infested fields.

The Federal quarantine against the soybean cyst nematode is functioning smoothly permitting the harvesting of the soybean, cotton, and other crops concerned without undue inconvenience to the growers. The six infested States are enforcing parallel State quarantines. In Missouri alone 30,000 certificates were issued to cover the movement of soybean seed for planting purposes produced within the regulated area of Missouri.

19. Sweetpotato weevil control.

- a. Use of insecticides continued in control of weevil. During the fiscal year 1958 the sweetpotato crop in six infested Southern States was protected from attack by the sweetpotato weevil through the application of insecticide to more than 2,000 sweetpotato seedbeds, the treatment with insecticides of some 14,000 acres of plantings, and the dusting at harvest of over 1,000,000 bushels of sweetpotatoes before storage in the fall.
- b. Insecticides plus unfavorable weather reduce weevils. In addition to the effects of the now well established usage by growers of insecticides for weevil control severe winter freezes followed by a wet spring resulted in extensive destruction of volunteer and wild host plants which caused further reduction of populations. Weevil damage to sweetpotatoes was less than in any year since 1950. The number of new counties found infested was 40% less than in 1957, and the number of farms freed of sweetpotato weevil increased 22% over the previous year. (See Figure 25).



# PINK BOLLWORM CONTROL

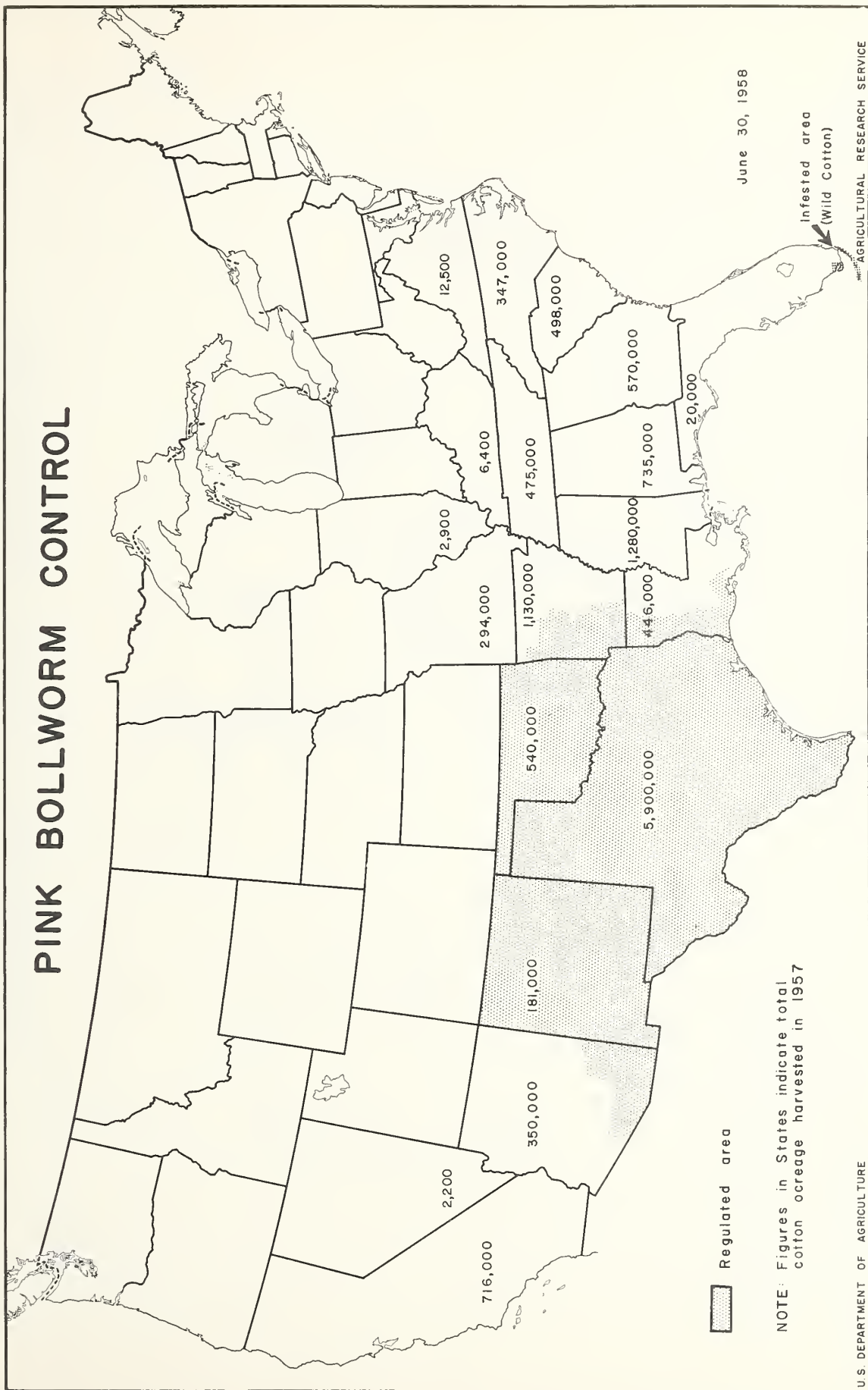
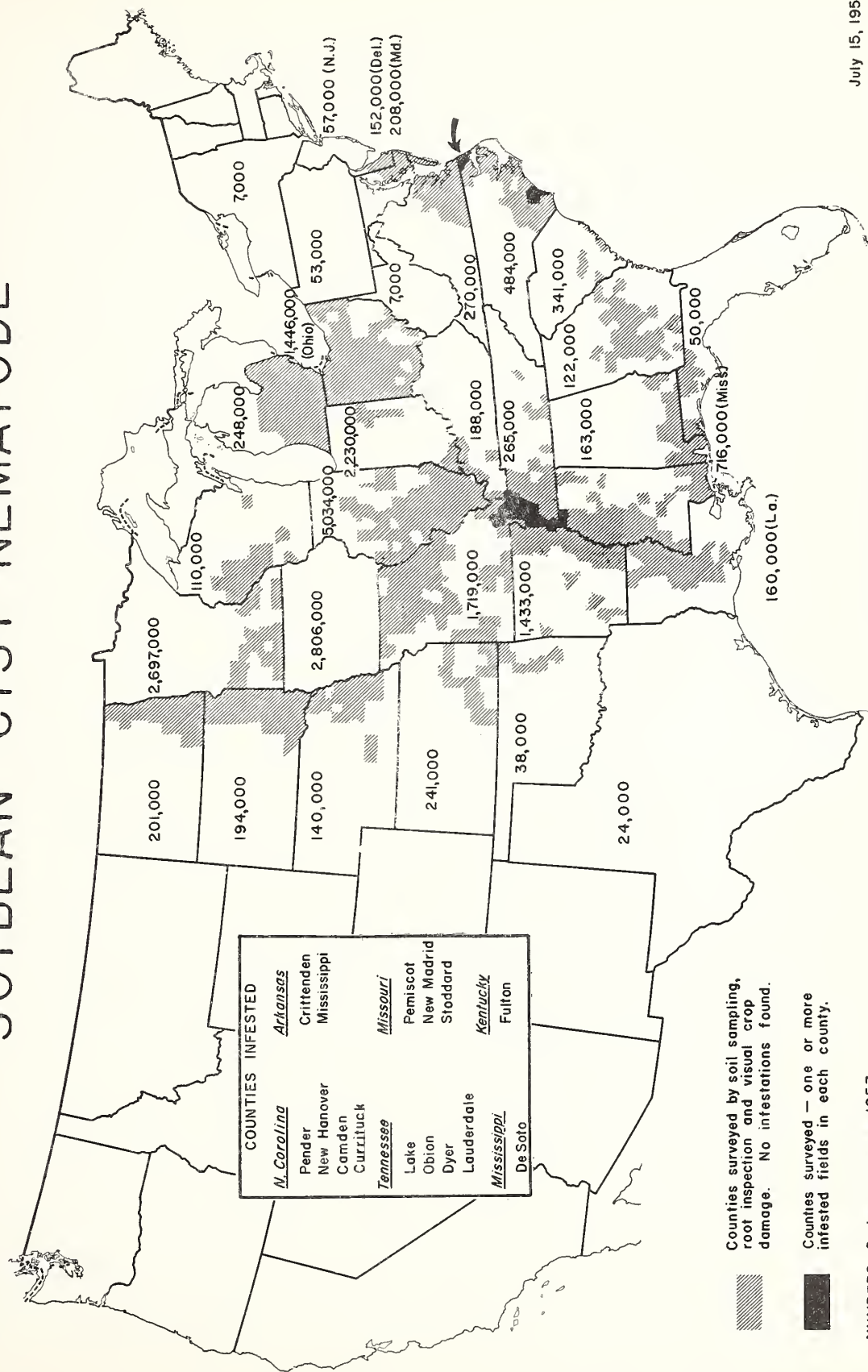


FIGURE 23



# SOYBEAN CYST NEMATODE



July 15, 1958

Prepared in Plant Pest Control Division from available ARS and State records.

FIGURE 24





# SWEETPOTATO WEEVIL CONTROL

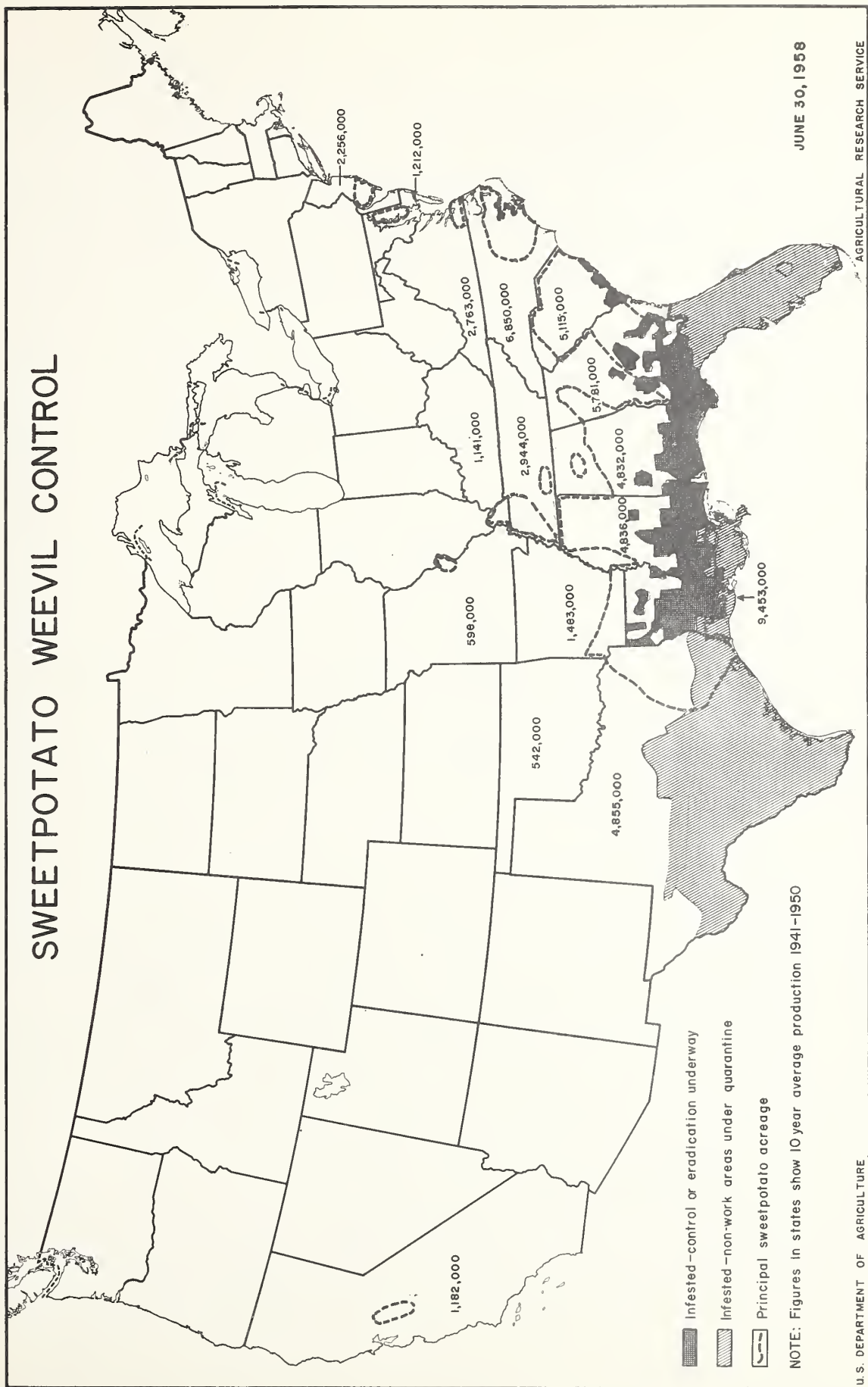


FIGURE 25





20. White-fringed beetle control.

- a. Infested acres treated for eradication exceed newly found infested acres. More than 53,000 acres were treated with soil insecticides as a means of eliminating white-fringed beetles. While about 48,000 acres, contiguous to known infestations, were found infested for the first time, there is a net reduction of about 5,000 infested acres from the previous year. Materials and facilities are available and treatments are being applied during the current year to all remaining infested areas in South Carolina. (See Figure 26).
- b. Special emphasis on preventing long-distance spread. Particular attention is being given to nurseries, railroad yards, and loading points to reduce or eliminate beetle populations as a means of preventing contamination of products being shipped to uninfested areas.

21. Witchweed.

- a. Additional witchweed infestation found in North Carolina and South Carolina. Witchweed, Striga asiatica, a parasitic flowering plant, is a serious pest of corn, sorghum, and sugarcane and attacks more than 60 other species of the grass and sedge families, including rice, wheat, oats, and barley. Following discovery of witchweed in the Carolinas in 1956, systematic surveys were made to determine the extent of the infestation. As of October 1, 1958, infestations had been found on 2,605 farms in North Carolina, and on 799 farms in South Carolina in a total of 18 counties. These farms aggregate about 200,590 acres of which 146,554 are under cultivation. The surveys are continuing in the Carolinas and adjacent areas of bordering States. (Figure 27).
- b. Eradication program started in North Carolina and South Carolina. Witchweed can be eradicated by growing catch crops, such as corn, sorghum, and millet, that cause its seed to germinate and then plow under before seed is produced on the new witchweed plants. Certain herbicides are also effective. Eradication of this pest requires destruction of all seed in the soil, either by cropping or some other means. A pilot eradication program was initiated in May 1958 in North Carolina and South Carolina on approximately 1,000 acres. Under the plan the owners or operators of the land agreed to grow catch crops on infested land instead of their normal cropping practices. The pilot test involved planting two catch crops during the growing season, plus a small grain cover crop in the fall that promote further germination of witchweed seed. Fertilizer and seed were furnished to the grower by the Agricultural Research Service and he was reimbursed at the local prevailing rates for his services in carrying out prescribed management practices. Witchweed on adjacent noncultivated land

was destroyed with 2, 4-D. Witchweed eradication management practices are acceptable under the Department's Conservation Reserve program. Farmers who place their land in this program receive the Conservation Reserve payment in lieu of income from normal crop production.

22. Contingency Fund. The following table shows the releases from the Contingency Fund for fiscal years 1953 through November 30, 1958:

# WHITE-FRINGED BEETLE CONTROL

White-fringed beetles feed on many species of plants, including such important crops as corn, cotton, alfalfa, lespedeza, peanuts, sweetpotatoes, sugarcane, and tobacco. Beetles can adapt themselves throughout much of the U.S.

TOTAL INFESTED ACRES — 658,887

COUNTRIES IN WHICH INFESTATION OCCURS



U.S. DEPARTMENT OF AGRICULTURE

JUNE 30, 1958

AGRICULTURAL RESEARCH SERVICE

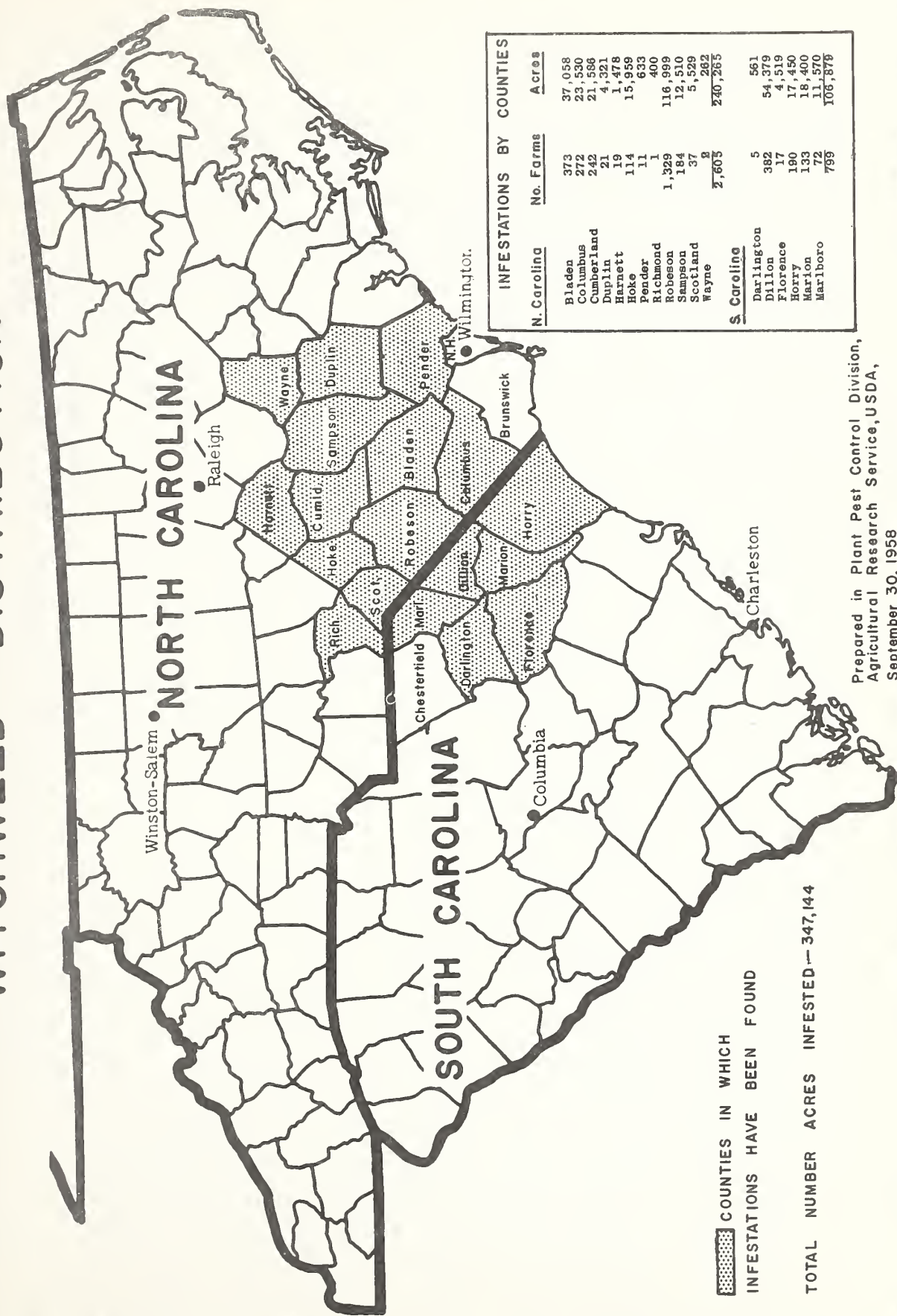
ISOLATED  
INFESTATION

Figure 26





# WITCHWEED DISTRIBUTION



Prepared in Plant Pest Control Division,  
Agricultural Research Service, USDA,  
September 30, 1958

FIGURE 27





Releases from the Contingency Fund for Control of Emergency Outbreaks of  
Insects and Plant Diseases, Fiscal Years 1953 through 1959 (11/30/58)

	1953	1954	1955	1956	1957	1958	1959 to 11/30/58
<b>Contingency Fund:</b>							
Annual appropriation acts .....	\$1,000,000	\$600,000	\$400,000	\$1,000,000	\$4,400,000	\$1,000,000	\$1,000,000
Supplemental appropriation acts ....	- -	- -	650,000	650,000	3,450,000	- -	b/ 500,000
Total appropriations for Contingency Fund .....	1,000,000	600,000	1,050,000	1,650,000	a/ 7,850,000	1,000,000	1,500,000
<b>Releases for Control of Emergency Outbreaks of Insects:</b>							
Grasshoppers and Mormon crickets	438,700	528,940	284,300	566,000	1,028,000	b/	- -
Burrowing nematode .....	- -	- -	35,000	150,000	403,000	b/	- -
European chafer .....	- -	- -	50,000	83,500	80,000	b/	- -
Khapra beetle .....	- -	- -	156,000	684,000	960,000	c/ 135,000	- -
Mexican fruit fly .....	- -	- -	125,000	137,000	135,000	b/	- -
Pink bollworm .....	- -	- -	- -	- -	- -	- -	500,000
Soybean cyst nematode .....	- -	- -	- -	30,000	77,000	d/ 280,000	d/ 320,000
Mediterranean fruit fly .....	- -	- -	- -	- -	a/ 4,675,000	e/ 55,000	- -
Witchweed .....	- -	- -	- -	- -	22,000	330,000	- -
Total releases .....	438,700	528,940	650,300	1,650,000	7,380,000	800,000	i/ 820,000
Balance in Contingency Fund .....	f/ 561,300	71,060	g/ 399,700	- -	470,000	g/ 200,000	680,000

a/ Includes \$1,250,000 which was immediately available in fiscal year 1956 for control of Medfly.

b/ Provided for under regular projects 1958 and 1959.

c/ \$493,800 provided under regular projects.

d/ \$120,000 provided under regular projects.

e/ \$250,000 provided under regular projects 1958 and 1959.

f/ Includes \$500,000 not required for emergency insect control activities which was transferred to the item for control of vesicular exanthema to meet emergency needs.

g/ This balance was transferred after the close of the fiscal year to other appropriations to meet retroactive pay cost.

h/ Provided in 1959 Supplemental Appropriation Act for pink bollworm outbreak.

i/ In addition, pending the availability of \$3,000,000 provided in the Supplemental Appropriation Act 1959, for witchweed control, \$80,000 was released from the Contingency Fund to continue the surveys and quarantines then under way.

TABLE II

Plant Quarantine:

23. Steady Increase in Foreign Travel Continues. In the calendar year 1957 there were 144.6 million entries of people into the United States, an increase of approximately 10.5 million over the preceding year. In addition, many thousands of people traveled to the mainland from Hawaii, Puerto Rico and the American Virgin Islands. The combined total of people entering mainland ports during 1957, subject to plant quarantine inspection, approximated the total population of the United States.

As indicated by the following tabulation other major inspection activities increased proportionately:

Workload Data Fiscal Years 1957 through 1959

	F. Y. 1957	F. Y. 1958	F. Y. 1959 (Estimated)
<u>Inspection:</u>			
Airplanes, approximately 36% carrying unauthorized plant material in 1958 .....	110,944:	121,231:	133,000
Vessels arriving, approximately 30% carrying unauthorized material in 1958 .....	58,341:	59,180:	60,000
Cargo importations of plant material under permit .....	68,861:	68,647:	70,000
Shipments of plants and plant products inspected or treated and certified for movement from Hawaii and Puerto Rico to the mainland .....	15,516:	17,247:	19,000
Freight cars from Mexico .....	85,084:	89,055:	93,000
<u>In cooperation with Customs:</u>			
Vehicles from Mexico .....	18,453,115:	19,434,535:	20,500,000
Baggage, airborne, pieces of .....	7,535,088:	8,790,520:	10,200,000
Baggage with surface-borne passengers from Mexico .....	4,787,488:	5,387,531:	6,000,000
Baggage with ships' passengers, number of pieces .....	3,281,556:	3,098,998:	3,200,000
<u>Interceptions:</u>			
Unauthorized plant material, all sources .....	290,959:	311,391:	333,000
Lots of insects and plant diseases of plant quarantine significance, all sources .....	15,058:	18,198:	22,000
<u>Export certification:</u>			
Containers of domestic plants and plant products exported .....	25,410,791:	24,681,763:	27,000,000
Export certificates issued .....	48,646:	50,072:	53,000



24. Increased foreign traffic brings more foreign pests. There is a direct relationship between the volume of incoming foreign traffic and the danger of new pests being brought into the country. In fiscal year 1958, a record year for foreign travel, plant quarantine inspectors at ports of entry intercepted 18,198 lots of destructive plant pests. In other words, a serious pest was stopped at our borders on an average of once every 30 minutes during the year. This represented an increase of more than 3,000 pest interceptions over the previous year. Some of the more well known species and the number of times they were taken during fiscal year 1958 were: Khapra beetle - 26; Mexican fruit fly - 162; pink bollworm - 19; Mediterranean fruit fly - 96; golden nematode - 45; West Indian fruit fly - 129; citrus black fly - 16; cherry fruit fly - 31; melon fly - 5; black spot of citrus - 161; oriental fruit fly - 26; citrus canker - 78; olive fruit fly - 31; and Mediterranean land snail - 31.
25. Further measures taken to obtain cooperation of traveling public. Recognizing the added threat of pest entry brought about by increased foreign travel and the need for supplementing port of entry inspection, additional steps have been taken to inform travelers about plant quarantines and enlist their cooperation in keeping foreign pests out of the country. A motion picture emphasizing the danger of agricultural pests and diseases being spread by material carried in passengers' baggage is now being shown on approximately 50 ships during voyages. Passenger reaction to the film has been very good. Prints of the movie have been placed in film libraries in each State and it is being shown widely throughout the country. It has been televised on several occasions and plans are under way for further television use. An attractive card outlining restrictions on the movement of plant material from Hawaii to the mainland has been prepared. It will be placed in rooms of all the larger hotels in Honolulu. Other card notifications, magazine and newspaper articles and warning signs have been put into use. Plant quarantine exhibits have been shown at various points and arrangements have been made to have educational exhibits on this subject at three large national meetings within the next six months.
26. Increasing travel and commerce necessitate staffing of additional stations. During fiscal year 1958 it became necessary to establish plant quarantine service at three additional ports to safeguard against the danger of pest entry brought about by increasing foreign travel and commerce. These were Cleveland, Ohio; San Luis, Arizona; and Wilmington, North Carolina. There has already been a substantial increase in shipping into Cleveland as a result of the St. Lawrence Seaway project. Cleveland is destined to be a key port when the project is completed and it is reported that about 90% of the vessels using the Seaway will make Cleveland their first port of call. Traffic through San Luis has been growing steadily for several years and the development of highways in Mexico will increase traffic. There has also been a marked development in agriculture in nearby areas south of the border. The khapra beetle occurs nearby in Mexico and other pests of that country can also be brought through the port. The Customs Service, as well as the State Entomologist of Arizona, have recognized the growing importance of San Luis as a plant quarantine port of entry and have strongly urged that it be staffed. It was



26. necessary to establish inspection service at Wilmington, North Carolina, because of the growing volume of shipping, the location of two large fumigation plants in the vicinity of the port, and the need for closer contact with military air bases in the area at which flights arrive from foreign points. A recent survey of agricultural quarantine problems at Anchorage, Alaska, revealed that foreign air traffic has developed to the point where plant and animal quarantine protection are needed at that port.
27. Snail contaminated cargoes present new threat. During fiscal year 1958 there were repeated arrivals of military supplies, household goods, and other cargoes infested with the Mediterranean land snail, Theba pisana. This snail occurs throughout the Mediterranean area and is capable of developing extremely heavy populations. It is not known to occur in the United States. Infested cargoes arrived by air and ocean freight. In a number of cases it was necessary to fumigate the holds of vessels carrying infested material as well as to fumigate cargoes that had been unloaded. At the invitation of the Air Force a representative of the Plant Quarantine Division visited Air Force installations in the Mediterranean area during the year to review the problem and advise on measures to prevent the movement of the snail on cargo shipped to the United States. The Department is continuing to work closely with local Armed Services representatives to reduce the quantity of infested material arriving at our ports.
28. Full responsibility assumed for plant quarantine protection at Florida ports. During fiscal year 1958 arrangements were completed for assuming full fiscal and program responsibility for plant quarantine activities at Florida ports. The program had previously been conducted by Florida Plant Board personnel in cooperation with the Department. Florida's mild climate, extensive and varied agriculture, and the growing volume of foreign traffic arriving at its ports, make the State especially vulnerable to the entry and establishment of foreign pests. To safeguard against that threat, inspection staffs at Florida ports were augmented during the year as rapidly as conditions permitted. In-service training was inaugurated, and emphasized, to increase the effectiveness of individual inspectors.

## ANIMAL DISEASE AND PEST CONTROL

Current activities: Measures are devised to exclude from this country communicable animal diseases of foreign origin; to prevent the spread of communicable diseases through interstate shipments of livestock or distribution of impure or impotent veterinary biologics; to control and eradicate livestock diseases; and to maintain, through a marketing agreement with manufacturers and handlers, adequate supplies of hog cholera virus, serum, and vaccine for protection of swine.

### Selected Examples of Recent Progress:

#### Animal Disease Control and Eradication:

##### 1. Progress in tuberculosis eradication program continues:

- a. Procedures for tracing of infected and exposed animals continue to be effective aids to eradication. During fiscal 1958, many instances of successful and valuable tracing have been reported. In one case, such tracing led to a ranch where the test of 420 range and 322 purebred animals revealed 124 reactors. Eight herds into which purchases had been added from this infected herd were also tested disclosing an additional 43 reactors.
- b. Field representatives attend Tuberculosis Eradication Conference. A Tuberculosis Eradication Conference, national in scope, was held at Michigan State University during June, 1958. Testing methods and other eradication procedures were carefully reviewed and demonstrated.
- c. A comparison of funds provided by the Federal Government and co-operating States and counties for the eradication of tuberculosis for the fiscal years 1958 and 1959 follows:

	1958		1959	
	: Federal	: Government: Cooperators	::Federal	: Government: Cooperators
Operating	:	:	::	:
funds ...	\$1,499,475	\$4,084,219	::\$1,705,600	\$4,437,553
Indemnity	:	:	::	:
payments	: 390,677:	868,630	:: 443,000:	1,093,409
Totals	: 1,890,152:	4,952,849	:: 2,148,600:	5,530,962

- d. Tables III and IV show the average State and Federal indemnity payments and other data pertaining to the program for control and eradication of tuberculosis:





STATEMENT OF COMPARATIVE TESTING, HERDS AND CATTLE UNDER SUPERVISION, MODIFIED ACCREDITED AREAS  
AVERAGE APPRAISAL, SALVAGE, AND STATE AND FEDERAL INDEMNITY IN TUBERCULOSIS ERADICATION WORK  
FISCAL YEAR 1935 TO 1958 INCLUSIVE

Fiscal Year	TESTS CONDUCTED		Reactors Found	Per- cent infec- tion	UNDER SUPERVISION		Modi- fied accred- ited areas*	AVERAGE DURING YEAR			
	Herds	Cattle			Herds	Cattle		Appraisal	Salvage	State Indemnity	Federal Indemnity
1935	2,378,668	25,237,532	376,623	1.5	6,590,863	48,768,627	2,428	\$ 57.55	\$ 15.19	\$ 15.87	\$ 18.70
1936	1,944,624	22,918,038	165,496	.7	6,515,273	59,907,935	2,921	77.66	26.50	10.18	22.44
1937	961,109	13,750,308	94,104	.7	6,745,471	61,640,711	3,030	86.04	28.94	12.20	22.72
1938	1,007,586	14,108,871	89,359	.6	6,471,538	62,640,358	3,124	86.76	32.16	16.41	18.12
1939	750,806	11,186,805	60,338	.5	6,372,720	60,439,030	3,142	89.01	34.49	18.96	15.97
1940	819,408	12,222,318	56,343	.46	6,191,330	61,570,426	3,148	91.05	37.12	20.44	16.20
1941	777,435	12,229,499	40,702	.3	6,235,198	62,696,167	3,151	96.50	40.99	20.95	16.48
1942	681,504	10,983,086	28,008	.26	6,320,006	63,073,213	3,151	109.69	50.35	21.49	16.55
1943	563,413	9,308,936	17,167	.18	6,317,670	63,846,496	3,151	135.19	65.03	27.50	18.75
1944	524,927	8,894,466	18,338	.2	6,153,069	64,519,652	3,151	154.53	59.93	36.07	21.72
1945	484,749	8,105,480	19,534	.24	6,120,528	64,790,921	3,151	161.32	59.78	40.31	22.71
1946	505,296	8,454,463	19,464	.23	6,035,783	65,981,099	3,150**	174.20	69.00	37.26	23.89
1947	515,517	8,312,919	16,666	.2	6,082,666	65,577,421	3,150	199.46	83.55	40.81	24.19
1948	523,924	8,294,423	15,943	.19	6,044,170	66,246,215	3,150	234.60	119.74	38.53	23.90
1949	536,162	8,737,501	17,007	.19	5,985,215	65,419,332	3,150	285.78	139.46	37.68	24.72
1950	539,799	9,439,811	17,733	.19	5,991,703	65,443,353	3,150	272.87	123.24	43.40	25.05
1951	503,933	8,847,228	12,353	.14	5,808,062	64,824,960	3,149***	323.70	174.64	43.59	24.92
1952	488,769	9,164,265	10,351	.11	5,798,865	64,791,861	3,149	346.13	174.05	46.15	25.66
1953	463,159	9,675,245	10,811	.11	5,688,183	67,423,940	3,149	309.47	117.31	49.22	26.12
1954	478,975	10,234,665	10,886	.11	5,681,947	67,937,276	3,149	250.92	82.18	43.76	26.60
1955	417,683	9,210,810	11,133	.12	4,669,733	79,567,058	3,149	235.10	77.63	45.24	25.28
1956	418,059	9,220,244	14,363	.15	4,645,342	86,869,478	3,148****	246.52	89.43	39.97	25.60
1957	414,162	8,976,409	13,974	.16	4,229,996	85,272,126	3,150v	255.69	94.06	38.44	25.78
1958	396,587	8,883,813	15,361	.17	4,108,329	86,573,974	3,150	301.81	133.27	36.65	26.13

\* Includes Puerto Rico and the Virgin Islands

\*\* Reduction is due to consolidation of two counties.

\*\*\* Reduction is due to fact no cattle under supervision in District of Columbia

\*\*\*\* Reduction is due to consolidation of two counties in South Dakota.

v Increase is due to addition of a new county in New Mexico and also includes Alaska.

TABLE III



UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
ANIMAL DISEASE ERADICATION DIVISION

SUMMARY OF BOVINE TUBERCULOSIS ERADICATION IN COOPERATION WITH THE VARIOUS STATES  
FISCAL YEAR 1958

STATE	Herds Tested	Cattle Tested	Infected Premises	Percent Infected	Reactors Found	Percent Reactors
Connecticut	5,956	155,731	34	0.57	55	0.04
Maine	5,677	83,539	11	0.19	49	0.06
Massachusetts	8,427	160,951	43	0.51	75	0.05
New Hampshire	6,578	80,325	3	0.05	4	0.01
New York	23,680	670,693	232	0.98	580	0.08
Rhode Island	1,605	21,526	16	1.00	16	0.07
Vermont	5,222	155,378	11	0.21	19	0.01
TOTALS AREA 1	57,145	1,328,143	350	0.61	798	0.06
Delaware	1,607	40,093	20	1.24	26	0.06
Kentucky	6,071	85,568	43	0.71	84	0.10
Maryland	11,508	270,773	164	1.43	295	0.11
New Jersey	7,661	196,302	157	2.05	207	0.11
Pennsylvania	39,021	628,518	239	0.61	668	0.11
Virginia	7,327	228,580	38	0.52	90	0.04
West Virginia	1,928	44,436	15	0.78	21	0.05
TOTALS AREA 2	75,123	1,494,270	676	0.90	1,391	0.09
Illinois	14,608	323,322	282	1.93	524	0.16
Indiana	18,466	214,710	290	1.57	545	0.25
Michigan	25,757	492,218	2,313	8.98	4,576	0.93
Ohio	26,458	363,898	594	2.25	948	0.26
TOTALS AREA 3	85,289	1,394,148	3,479	4.08	6,593	0.47
Iowa	12,696	314,894	302	2.38	516	0.16
Minnesota	31,680	624,207	98	0.31	209	0.03
Nebraska	1,781	53,185	36	2.02	58	0.11
North Dakota	726	24,803	35	4.82	57	0.23
South Dakota	1,273	72,265	20	1.57	28	0.04
Wisconsin	28,793	793,091	753	2.62	1,960	0.25
TOTALS AREA 4	76,949	1,882,445	1,244	1.62	2,828	0.15
Idaho	2,577	47,797	17	0.66	179	0.37
Montana	990	20,039	2	0.20	2	0.01
Nevada	291	4,963	0	0.00	0	0.00
Oregon	2,650	32,186	15	0.56	18	0.05
Utah	1,796	16,408	9	0.50	13	0.08
Washington	1,483	46,204	8	0.54	9	0.02
Wyoming	671	8,957	2	0.30	2	0.02
Alaska	111	1,944	0	0.00	0	0.00
Hawaii	507	34,693	16	3.15	51	0.15
TOTALS AREA 5	11,076	213,191	69	0.62	274	0.13
Arizona	1,312	36,131	33	2.52	60	0.17
California	18,413	727,728	447	2.43	1,724	0.24
Colorado	1,133	30,524	1	0.08	1	0.00
New Mexico	687	19,157	2	0.29	3	0.02
Texas	11,188	327,414	167	1.49	476	0.15
TOTALS AREA 6	32,733	1,140,954	650	1.99	2,264	0.20
Arkansas	3,138	44,665	8	0.25	36	0.08
Kansas	7,656	142,519	41	0.53	50	0.04
Louisiana	2,008	66,111	15	0.74	33	0.05
Mississippi	2,531	75,852	3	0.12	3	0.00
Missouri	11,140	243,649	19	0.17	34	0.01
Oklahoma	3,277	83,929	27	0.82	54	0.06
Tennessee	2,124	55,511	25	1.18	108	0.19
TOTALS AREA 7	31,874	712,236	138	0.43	318	0.04
Alabama	1,758	68,896	19	1.08	30	0.04
Florida	3,162	172,155	37	1.17	379	0.22
Georgia	2,965	100,808	31	1.05	181	0.18
North Carolina	12,058	178,915	5	0.04	20	0.01
South Carolina	3,237	64,080	13	0.40	35	0.05
Puerto Rico	3,218	133,572	40	1.24	250	0.19
TOTALS AREA 8	26,398	718,426	145	0.55	895	0.12
GRAND TOTALS	396,587	8,883,813	6,751	1.70	15,361	0.17

TABLE IV





2. Cooperative Federal-State brucellosis eradication campaign makes significant progress in reducing the substantial financial losses to livestock industry caused by this disease.

- a. More progress made in fiscal 1958 than in any similar period since the cooperative project was started in October 1954. Each fiscal year since 1954, increased participation on the part of the States in complete area work has contributed materially to the over-all successful operation of the campaign. As of October 15, 1958, forty-seven States, Alaska, Puerto Rico and the Virgin Islands were conducting effective brucellosis eradication activities.

Accomplishments for fiscal year 1958 surpassed those for 1957 (see Table V). The volume of blood testing, milk and cream ring testing, and vaccination were still further increased in 1958 over the previous high levels established in 1957. The fact that a high percentage of the blood test reactors are being promptly moved to slaughter reflects a determination on the part of livestock owners to free their herds of this disease as quickly as possible. Indemnity payments to owners for cattle slaughtered because of brucellosis also contribute to the early removal of reactor cattle.

- b. Infection rates further reduced. The results of 16 million blood agglutination tests conducted during fiscal year 1958 revealed 1.6% reactor cattle and 9.2% reactor herds. This compares with 1.76% reactor cattle and 10.6% reactor herds disclosed by blood testing during 1957. The fact that both animal and herd infection rates have declined during that period, confirms the value of procedures employed in the program.

Data comparing fiscal year 1958 with fiscal year 1957 follow.

	<u>FY 1957</u>	<u>FY 1958</u>
<u>Brucellosis Ring Tests</u>		
Herds tested	1,866,444	1,750,510
Estimated cattle in herds tested	31,481,474	30,927,215
Suspicious herds	212,580	164,224
Percent suspicious herds	11.39	9.4
<u>Blood Tests</u>		
Herds tested	1,170,906	1,176,601
Cattle tested	15,913,396	16,251,440
Infected herds found	123,964	108,560
Percent infected herds *	10.6	9.2
Reactors found	280,253	260,322
Percent of cattle infected	1.76	1.60
Reactors slaughtered	266,594	254,458
Percent of reactors slaughtered	95.1	97.7

	<u>FY 1957</u>	<u>FY 1958</u>
<u>Calves Vaccinated</u>	5,501,445	6,276,910
<u>Certification</u>		
Counties certified during year	235	482
States certified during year	2	9**
Total counties certified at end of year	735	1,217
Total States certified at end of year <sup>7</sup>	7	16**
Herds under supervision	2,697,184	2,867,519
Cattle under supervision	50,858,016	51,693,159

\* Based on results of blood tests only. If those herds and cattle that were negative to the brucellosis ring test were included, the percent of infected herds would be 6.2 in 1957 compared to 5.3 in 1958 and percent of cattle infected would be 0.96 in 1957 compared to 0.88 in 1958.

\*\* Including Puerto Rico

- c. Marked increase in number of Modified Certified Brucellosis-Free Areas. During fiscal year 1958, 482 counties in Continental United States, Puerto Rico, and the Virgin Islands were initially qualified as Modified Certified Brucellosis-Free Areas. This means that animal and herd infection rates had been reduced to levels not exceeding 1% and 5% respectively. Eight complete States and Puerto Rico achieved certification during the year. As of June 30, 1958, there was a total of 1,217 counties, including 15 entire States, and Puerto Rico, currently designated as Modified Certified Brucellosis-Free Areas. This compares with a total of 735 certified counties including seven States similarly qualified as of June 30, 1957. At the end of fiscal 1958, there were also 594 counties working on a complete area basis leading to early certification. By October 15, 1958, the number of certified counties had increased to 1,337.
- d. Progressive decline of infection rates observed in Modified Certified States. In each of the seven States which have been qualified as Modified Certified Areas for periods of at least 12 months, the indicated incidence of bovine brucellosis, based on blood tests only, has been still further reduced. As of June 30, 1958, these reductions averaged 0.75%. This trend is encouraging and represents a generally growing appreciation of the need for continuing the eradication effort beyond certification.
- e. Effectiveness of certification procedures based on full use of the brucellosis ring test confirmed. During the year a comprehensive study was conducted in two Wisconsin counties to determine the adequacy of area certifications developed in conjunction with full use of the milk and cream ring test. As a result of surveying 3,615 herds containing 74,055 cattle, it was found that reliance on the ring test was completely justified in view of the extremely low infection rate disclosed on blood tests. The average animal infection rate for the two areas studied was 0.11% well below the minimum 1.0%



TABLE V

State or Territory	BRUCELLOSIS BLOOD TESTS AND CALFHOOD VACCINATIONS										BRUCELLOSIS TITRO TESTS			
	Herds Tested	Cattle	Infected Herds			Reactors			Calves Vaccinated	Herd Tests	Estimated Cattle Represented	Suspicious Herd Tests	Estimated Negative Cattle	
			Number	Per-cent	Per-cent	Number Found	Per-cent	Per-cent						
Connecticut	6,809	110,837	205	3.6	2.8	317	0.31	15,717	8,489	72,010	308	67,109		
Maine	7,990	11,624	243	2.6	2.4	268	0.31	1,717	1,785	17,881	88	157,760		
Massachusetts	9,505	174,169	716	4.7	4.7	1,560	0.31	1,145	5,796	115,720	1,320	197,200		
Michigan	2,323	17,189	10	0.6	0.5	1,560	0.06	9,615	1,621	18,801	10	165,959		
New York	23,323	552,850	7,382	27.0	6.2	12,376	2.22	261,222	96,100	1,869,593	10,927	1,659,630		
Rhode Island	25,590	117	117	7.4	7.1	1,900	0.74	2,047	117	2,940	27	2,400		
Vermont	6,565	155,262	1,004	15.3	6.9	1,887	1.22	52,451	17,294	624,580	1,288	574,302		
TOTALS - AREA 1	65,369	1,128,660	9,731	14.9	5.5	16,372	1.15	375,335	130,125	2,911,518	14,118	2,635,400		
Alabama	1,791	32,782	20	1.1	0.8	29	0.09	5,126	1,498	34,611	16	33,466		
Arkansas	33,091	326,752	3,989	11.8	7.4	8,025	2.46	1,521	1,521	174,938	7,243	399,019		
California	16,408	282,281	631	2.4	2.4	689	0.24	52,025	5,983	114,071	303	108,373		
Colorado	7,565	159,185	820	10.8	8.1	1,276	0.80	55,236	5,625	212,584	398	195,909		
Delaware	50,603	768,122	2,862	4.5	2.8	3,617	0.17	160,279	59,194	904,754	591	894,173		
Pennsylvania	30,638	401,615	1,337	3.9	3.7	2,383	0.59	76,224	4,450	57,464	249	53,381		
Virginia	20,438	213,424	436	2.1	2.1	1,017	0.48	11,080	608	12,302	11	11,860		
TOTALS - AREA 2	164,597	2,184,461	9,156	5.6	4.1	17,036	0.78	381,240	123,703	1,809,760	8,441	1,696,501		
Illinois	60,716	595,251	3,166	5.2	1.2	6,512	1.10	142,945	79,224	719,345	2,562	726,923		
Indiana	44,308	575,864	3,983	8.8	4.6	7,739	1.63	66,879	82,392	791,181	2,026	761,839		
Iowa	46,169	667,305	5,762	12.4	7.3	13,658	2.87	70,983	68,747	1,077,907	5,704	1,007,622		
Michigan	46,311	398,362	3,339	9.3	5.2	8,961	2.25	77,352	71,807	973,359	6,715	880,601		
TOTALS - AREA 3	192,468	1,936,692	16,650	8.6	5.0	36,900	1.91	357,959	301,172	3,581,792	16,807	3,376,995		
Minnesota	51,773	164,533	6,144	11.9	4.6	13,203	2.86	263,184	182,353	2,462,425	21,792	2,172,239		
Montana	69,136	1,252,471	5,166	7.4	3.3	11,078	0.84	185,111	178,625	3,196,973	3,502	3,186,059		
Nebraska	20,164	260,108	1,485	7.4	2.9	3,421	1.72	211,868	52,643	207,515	1,899	198,170		
North Dakota	20,902	444,887	2,477	10.4	4.9	7,349	1.45	277,962	137,880	1,377,980	234	1,384,170		
South Dakota	17,616	251,002	2,432	12.3	7.9	7,456	2.13	277,962	31,933	1,377,980	3,422	1,384,170		
Wisconsin	25,286	533,551	3,438	13.4	2.8	6,959	1.30	523,125	683,739	4,523,085	7,388	4,367,937		
TOTALS - AREA 4	205,161	3,203,592	20,960	10.2	4.8	49,666	1.50	1,940,944	683,739	11,672,984	46,397	10,849,119		
Arizona	8,971	180,245	976	10.9	2.8	2,275	1.26	164,486	32,516	187,740	3,060	184,915		
California	6,924	159,373	367	5.3	4.0	894	0.56	308,791	4,640	51,865	50,793	50,793		
Colorado	2,751	144,261	386	14.0	13.2	1,361	0.96	74,931	11,238	11,015	8	11,015		
Oregon	23,603	320,256	1,115	4.7	3.4	2,973	0.87	152,051	375,080	375,080	1,139	353,115		
Utah	120,528	1,001,964	745	6.8	4.0	1,541	1.28	86,719	15,434	196,159	368	191,751		
Washington	7,922	150,592	501	6.3	3.4	1,221	0.91	110,115	14,095	211,275	187	186,605		
Wyoming	3,951	119,263	461	11.7	7.0	1,394	1.17	182,187	5,628	84,670	283	83,667		
Alaska	97	1,011	1	1.0	0.4	1	0.01	1	64	1,050	0	1,050		
Hawaii	469	24,559	81	17.3	11.3	465	1.95	2,174	19	0	0	0		
TOTALS - AREA 5	65,652	1,237,118	4,633	7.1	3.9	12,115	0.98	1,076,643	91,992	1,418,681	5,912	1,327,938		
Arizona	5,169	95,981	362	7.0	6.6	1,228	1.28	1,570	894	54,258	196	40,396		
California	2,562	383,689	1,266	22.6	18.3	2,663	1.45	392,579	3,507	251,462	938	179,791		
Colorado	14,869	230,159	2,172	6.6	4.5	2,172	0.91	146,150	14,380	208,423	659	198,531		
New Mexico	12,618	162,105	298	2.3	2.3	656	0.40	44,361	2,680	29,482	114	27,969		
TOTALS - AREA 6	20,960	308,998	4,099	19.6	16.3	17,525	5.67	168,527	17,609	567,602	9,207	192,253		
Arizona	59,158	980,635	6,992	11.8	9.6	24,244	2.47	772,187	38,679	1,111,247	10,914	639,740		
Arkansas	34,539	124,012	3,125	9.0	7.5	7,097	1.67	113,992	18,717	287,324	4,563	217,743		
California	39,912	127,027	2,771	12.6	14.9	7,763	2.74	228,596	71,570	2,196,109	9,660	1,901,650		
Colorado	38,910	582,919	6,301	21.3	20.4	30,322	4.36	110,181	6,360	156,103	2,905	81,402		
Illinois	39,161	552,905	3,146	8.4	6.4	9,511	1.73	122,666	30,204	737,340	5,322	595,470		
Mississippi	83,450	1,004,951	7,823	9.4	5.8	15,684	1.55	306,766	114,327	1,314,758	15,786	1,167,720		
Missouri	223,634	2,203,634	2,708	19.6	11.7	7,315	3.27	135,011	27,039	357,243	2,982	318,556		
Oklahoma	65,659	644,491	5,491	8.4	6.6	10,898	1.69	181,365	33,582	720,157	21,330	425,776		
TOTALS - AREA 7	293,059	3,719,999	33,140	11.3	7.8	85,510	2.30	1,228,575	353,809	5,770,094	59,546	4,708,317		
Alabama	21,707	288,262	1,862	8.6	7.3	4,330	1.68	54,009	9,648	124,512	1,805	344,740		
Florida	11,612	208,832	656	5.6	5.0	2,649	1.52	103,347	7,816	1,000,476	1,946	990,939		
Georgia	53,484	798,475	3,495	6.1	5.8	9,411	1.24	50,141	7,626	1,000,476	1,884	344,740		
North Carolina	24,219	512,455	882	3.8	3.4	6,521	0.24	36,824	23,044	469,910	270	331,698		
South Carolina	14,869	148,935	1,004	3.1	3.1	1,004	1.67	6,843	5,130	103,770	216	97,913		
Virginia	8,987	219,970	920	10.5	10.0	2,095	0.93	15,479	1,009	53,423	183	45,064		
TOTALS - AREA 8	130,757	1,860,183	7,390	5.7	4.8	20,079	1.08	245,026	53,300	2,651,139	7,789	1,464,636		
GRAND TOTALS	1,176,601	16,251,440	108,560	9.2	5.3	260,332	1.60	6,276,910	1,750,510	30,927,215	164,224	26,677,636		

\* Percent of hard and cattle blood tests only.  
\*\* Percent of hard and cattle infection in States conducting Brucellosis Ring Tests only. The number of BRT Negative herds and one half of the BRT Negative herds and cattle. The total number of BRT Negative herds and cattle are divided in half due to the fact that Ring Tests are conducted in most of the States on a semi-annual basis.



required for certification. It was also determined in this survey that the cost of locating a single Brucella infected herd was approximately 80% less by the screen ring-test than by the blood test alone.

ff. Alternate procedure for recertifying range and semi-range areas approved. A screening procedure for recertifying range and semi-range areas was adopted on January 3, 1958, as part of the official program for recertifying areas. This method will permit the recertification of areas on the basis of tests conducted at ranches, sales yards, and slaughtering establishments. Employment of this procedure is conditioned on the development of satisfactory systems for identifying and tracing back to herds all cull and dry cows tested. Wide scale utilization of this means of recertification will eliminate the need for extensive handling of range and semi-range cattle at the ranch level each three years.

g. New brucellosis film completed and distributed. During the past year, a new brucellosis movie, "Back the Attack on Brucellosis," was distributed in all of the States. The film is built around the importance of conducting brucellosis eradication on a complete area basis and the need for maintaining continued vigilance in Modified Certified Areas. Initial reactions indicate the movie is being well received and should be helpful in furthering the aims of the brucellosis eradication campaign.

h. Brucellosis eradication obligations for fiscal years 1956 through 1959 (estimated) and source of the funds involved follow:

(estimated)

A.	<u>Federal Funds:</u>	<u>FY 1956</u>	<u>FY 1957</u>	<u>FY 1958</u>	<u>FY 1959</u>
	Operating costs . . . . .	\$14,125,249	\$16,576,862	\$18,492,681	\$17,556,800
	Indemnities . . . . .	6,060,351	4,422,720	3,759,095	3,000,000
	Total . . . . .	20,185,600	20,999,582	22,251,776	20,556,800
<hr/>					
B.	<u>Financing:</u>				
	Provided under				
	"Salaries and				
	expenses, ARS" . . . . .	3,961,165	3,962,400	4,386,522	20,556,800
	Financed by trans-				
	ferees from Commodity				
	Credit Corporation . . . . .	16,224,435	17,037,182	17,865,254	- -
	Total . . . . .	20,185,600	20,999,582	22,251,776	20,556,800
<hr/>					
C.	<u>Funds provided by</u>				
	<u>cooperating States</u>				
	<u>and counties:</u>				
	Operating costs . . . . .	11,595,852	12,159,444	13,183,201	14,748,853
	Indemnities . . . . .	4,134,627	3,682,118	3,522,744	2,919,313
	Total . . . . .	15,730,479	15,841,562	16,705,945	17,668,166

i. Figures 28 and 29 and Tables VI to VIII show funds made available during fiscal year 1958 and other data relative to the program.



### 3. Scabies eradication.

- a. Psoroptic sheep scabies continues to give concern. The following tabulation compares the activities of fiscal years 1957 and 1958:

	<u>FY 1957</u>	<u>FY 1958</u>
Sheep inspected	11,944,196	9,500,782
Sheep dipped	572,262	356,854
Infected sheep located	57,073	57,405
Infected flocks	682	726
States reporting sheep scabies	24	24
Counties reporting sheep scabies	289	300

Major sheep raisers' associations, State livestock sanitary officials, and others, strongly support the Department's eradication program. Table IX shows the total number of sheep inspected and total dippings, and Figure 31 indicates the locations where the disease was found.

- b. Federal quarantine for psoroptic cattle scabies lifted in Colorado. Psoroptic scabies had been diagnosed in cattle in Iowa, Kansas, and Colorado. On July 1, 1957, Federal and State quarantines were in effect in Colorado and included all of Crowley County and those parts of Bent, Las Animas, Otero, Prowers, and Pueblo Counties directly involved in previous outbreaks of the disease. The quarantined areas were reduced as the disease was eradicated. The cooperative eradication program was considered successful, and on June 12, 1958, quarantines were lifted from all areas involved at that time. There are no areas, at present, in the United States under Federal quarantine because of cattle scabies. All known infected herds have been treated under supervision, and every effort has been made to trace movements of cattle from these herds and to establish the origin of infection in each case.

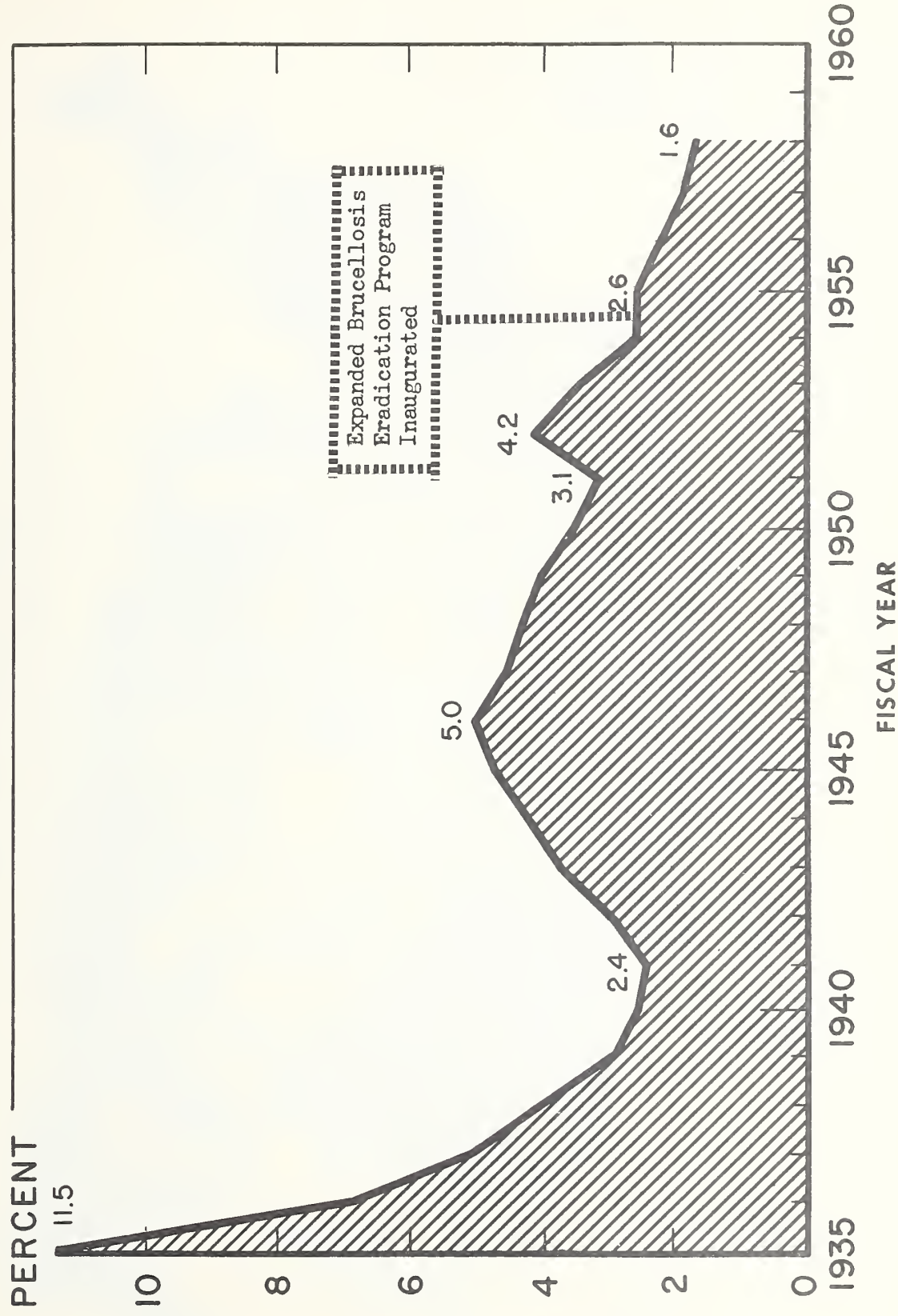
4. The cattle-fever tick eradication program continues active. In 1958 there were 2,831,784 inspections or dippings compared with 1,931,902 in fiscal year 1957.

The eradication program continued to be active in Florida where 14 premises have been found to be infested since April 1957 when a reinfestation of ticks was discovered. No ticks have been found since September 1957. There remain 15 premises with 4,400 cattle under State quarantine.

5. Cooperative Federal-State screwworm eradication program proceeds on schedule. The eradication program commenced with \$1,600,000 provided in the Second Supplemental Appropriation Act, 1958, approved August 28, 1957. A base of operations was selected at Sebring, Florida, where fly-production facilities were completed by the start of the current fiscal year.

# BOVINE BRUCELLOSIS U.S.A.

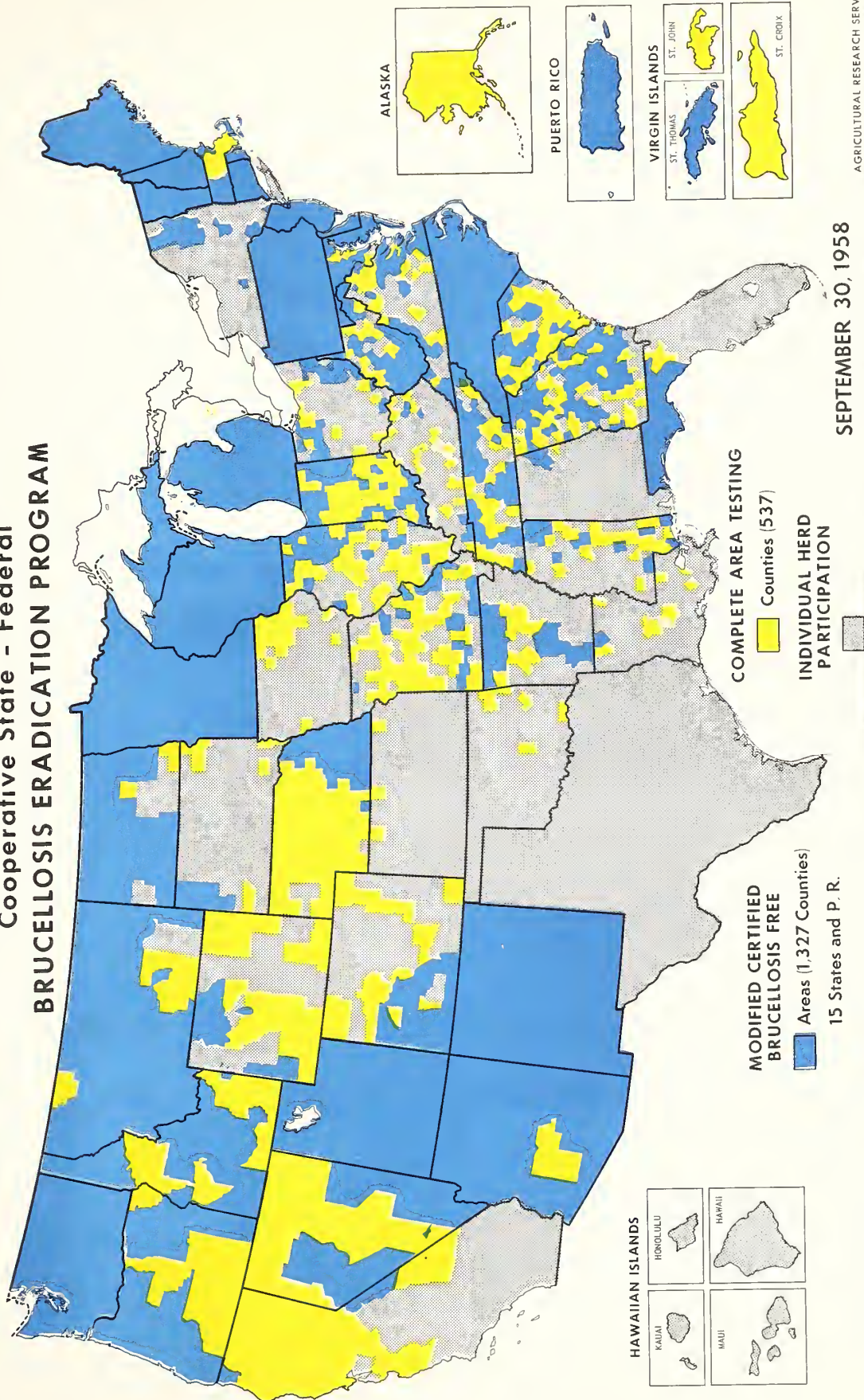
Reactors to Official Blood Serum Agglutination Tests







# Cooperative State - Federal BRUCellosis ERADICATION PROGRAM



AGRICULTURAL RESEARCH SERVICE

U. S. DEPARTMENT OF AGRICULTURE

FIGURE 29



AVERAGE APPRAISAL, SALVAGE, AND INDEMNITIES IN BRUCELLOSIS ERADICATION WORK  
FISCAL YEAR 1935 TO 1958 INCLUSIVE

Fiscal Year	Reactors on which Indemnity was Paid	Percent Purebred Cattle	Average Appraisal	Average Salvage	INDEMNITY PAID BY			
					FEDERAL		STATE	
					No. of States in which Paid	Average Amount	No. of States Paying Indemnity	Average Amount
1935	Figures not available	18.0	\$ 56.86	\$ 19.87	Figures not available	\$24.29	1	\$27.99
1936	439,041	11.0	70.65	27.44	48	26.86	2	20.57
1937	352,092	9.0	70.67	27.94	48 *	26.45	5	19.25
1938	278,619	9.0	80.37	32.07	47 *	26.69	10	20.36
1939	182,285	9.0	97.17	33.97	47	20.00	28	26.09
1940	119,660	11.0	90.85	34.99	36	14.96	36	17.12
1941	129,225	10.0	93.28	37.68	39	15.19	39	17.19
1942	127,274	9.0	99.19	52.06	41	15.83	41	17.71
1943	91,065	10.0	128.03	64.87	39 *	16.77	39 *	18.63
1944	81,677	10.0	143.34	59.75	40 *	19.30	40 *	22.54
1945	89,766	10.0	139.35	56.63	39 *	19.25	39 *	22.14
1946	82,586	10.0	149.65	68.64	39 *	19.34	39 *	22.07
1947	62,115	11.0	178.25	82.93	40 *	20.64	40 *	23.44
1948	51,111	11.0	203.98	107.38	39 *	21.17	39 *	24.44
1949	43,237	11.0	256.46	132.11	37 *	23.41	37 *	25.67
1950	34,759	11.0	237.68	114.21	31 *	22.75	31 *	25.16
1951	21,079	11.0	285.16	164.52	27 *	21.74	27 *	24.27
1952	29,322	8.0	334.68	189.39	25 *	24.05	25 *	26.03
1953	23,456	8.0	276.52	122.52	24 *	22.32	24 *	25.59
1954	39,485	6.0	190.90	89.18	25 *	11.71	25 *	20.64
1955	139,159	5.0	189.36	87.38	41 *	20.65	26 *	20.85
1956	231,687	4.9	203.63	84.58	40 **	23.21	25 **	22.33
1957	166,737	5.3	201.29	84.98	43 *	22.29	28 *	19.64
1958	146,843	5.6	233.48	113.19	44 ***	22.12	30 ***	19.58

\* Plus Puerto Rico

\*\* Plus Puerto Rico, and Alaska

\*\*\* Plus Puerto Rico, Alaska, Hawaii, and Virgin Islands

TABLE VI





STATEMENT OF COMPARATIVE BRUCELLOSIS TESTING  
HERDS AND CATTLE UNDER SUPERVISION  
FISCAL YEAR 1935 TO 1958 INCLUSIVE

Fiscal Year	BLOOD TESTS				MILK RING TESTS				UNDER SUPERVISION (As of June 30 Yearly)	
	Herds	Cattle	REACTOR CATTLE		Herd Tests	Estimated Cattle Represented	SUSPICIOUS HERD TESTS		Herds	Cattle
			Number	Percent			Number	Percent		
1935	212,482	3,317,760	381,010	11.5					187,109	2,936,347
1936	470,788	6,674,709	457,104	6.8					449,644	5,780,418
1937	630,917	8,021,167	397,864	5.0					719,452	7,877,612
1938	671,310	7,837,443	324,532	4.1					1,035,454	9,447,137
1939	724,613	7,591,398	219,165	2.9					1,372,410	11,111,643
1940	590,393	6,937,428	171,953	2.5					1,615,755	12,315,329
1941	677,544	7,465,254	182,075	2.4					1,883,914	13,932,693
1942	591,835	6,891,219	209,238	3.0					2,105,294	15,627,027
1943	392,636	5,185,228	197,329	3.8					2,199,535	16,616,522
1944	386,266	5,235,912	226,079	4.3					2,254,235	17,326,138
1945	395,236	5,213,458	243,050	4.7					2,307,585	17,545,638
1946	389,814	4,876,866	245,786	5.0					2,360,699	17,870,154
1947	454,789	5,133,814	232,293	4.5					2,249,118	17,589,018
1948	533,936	5,434,792	232,199	4.3					2,291,760	18,128,318
1949	563,501	5,671,347	226,691	4.0					2,165,364	17,126,480
1950	618,801	5,974,721	208,298	3.5				Became Official Part of Program FY 1952	2,299,556	18,527,624
1951	565,155	5,640,836	172,322	3.1					2,324,621	19,197,790
1952	670,738	7,491,327	314,260	4.2					2,149,078	21,496,113
1953	660,344	7,860,870	268,348	3.4					2,102,545	21,607,676
1954	696,207	9,002,109	235,666	2.6					2,298,284	24,572,013
1955	984,541	14,186,241	365,247	2.6					2,585,277	31,948,708
1956	1,154,962	16,754,195	366,524	*1.25					2,737,483	42,582,071
1957	1,170,906	15,913,396	280,253	**0.96					2,697,184	50,858,016
1958	1,176,601	16,251,440	260,322	**0.88					2,867,519	51,693,159

\* Percent of infection in States conducting Brucellosis Ring Tests calculated on basis of total blood tests and total BRT negative tests for the last six months.

\*\* Percent of infection in States conducting Brucellosis Ring Tests calculated on basis of total blood tests and  $\frac{1}{2}$  of total BRT negative tests for Fiscal Years 1957 & 1958.

TABLE VII





## Brucellosis Eradication

Fiscal Year 1958

State	FEDERAL			STATE		
	Indemnity Payments	Operating Cost	Total	Indemnity Payments	Operating Cost	Total
Alabama	74,130	377,530	451,660	-	100,000	100,000
Arizona	24,713	147,301	172,014	10,000	43,800	53,800
Arkansas	149,586	694,070	843,656	-	210,000	210,000
California	83,177	449,602	532,779	320,000	454,112	774,112
Colorado	32,392	241,675	274,067	-	74,264	74,264
Connecticut	8,102	53,585	61,687	25,000	126,641	151,641
Delaware	832	15,090	15,922	14,000	24,010	38,010
D.C. & Regional Business Offices	-	1,608,002	1,608,002	-	-	-
Florida	23,279	346,628	369,907	100,000	271,546	371,546
Georgia	119,551	769,343	888,894	197,710	458,100	655,810
Idaho	49,166	298,631	347,797	1,000	100,500	101,500
Illinois	147,131	665,907	813,038	235,000	965,000	1,200,000
Indiana	163,335	410,903	574,238	-	621,870	621,870
Iowa	142,876	587,151	730,027	298,122	731,378	1,029,500
Kansas	5,787	365,152	370,939	-	118,698	118,698
Kentucky	142,533	291,974	434,507	-	350,000	350,000
Louisiana	561,164	436,921	998,085	540,000	382,956	922,956
Maine	8,059	73,801	81,860	10,000	109,000	119,000
Maryland	16,716	301,947	318,663	72,000	174,788	246,788
Massachusetts	28,764	167,499	196,263	25,000	125,000	150,000
Michigan	330,972	538,639	869,611	2,000	369,591	371,591
Minnesota	53,056	736,445	789,501	75,780	429,415	505,195
Mississippi	194,154	585,591	779,745	-	137,200	137,200
Missouri	192,355	686,729	879,084	332,000	663,000	995,000
Montana	-	366,222	366,222	-	175,000	175,000
Nebraska	80,120	688,100	768,220	20,000	213,866	233,866
Nevada	24,485	231,792	256,277	-	73,548	73,548
New Hampshire	1,084	41,321	42,405	4,500	73,000	77,500
New Jersey	32,535	129,612	162,147	100,000	126,105	226,105
New Mexico	11,635	223,242	234,877	7,830	75,000	82,830
New York	-	204,427	204,427	-	1,035,297	1,035,297
North Carolina	13,841	164,858	178,699	15,000	116,827	131,827
North Dakota	98,043	220,534	318,577	-	182,750	182,750
Ohio	-	287,726	287,726	-	336,000	336,000
Oklahoma	21,809	367,818	389,627	-	126,000	126,000
Oregon	63,224	425,635	488,859	56,818	182,832	239,650
Pennsylvania	99,643	390,659	490,302	480,000	610,000	1,090,000
Rhode Island	2,485	15,546	18,031	28,000	33,750	61,750
South Carolina	21,681	211,483	233,164	14,000	109,323	123,323
South Dakota	64,497	422,232	486,729	49,000	310,696	359,696
Tennessee	240,795	729,076	969,871	-	422,000	422,000
Texas	-	243,866	243,866	-	127,071	127,071
Utah	35,193	264,104	299,297	-	107,350	107,350
Vermont	41,033	148,978	190,011	25,000	107,000	132,000
Virginia	66,825	353,702	420,527	-	315,000	315,000
Washington	29,308	317,381	346,689	49,000	116,875	165,875
West Virginia	9,082	158,058	167,140	8,988	111,972	120,960
Wisconsin	184,992	633,472	818,464	366,996	850,341	1,217,337
Wyoming	11,384	214,094	225,478	-	75,000	75,000
Hawaii	7,561	5,886	13,447	-	43,273	43,273
Puerto Rico	46,010	182,741	228,751	40,000	86,456	126,456

TOTALS 3,759,095 18,492,681 22,251,776 3,522,744 13,183,201 16,705,945

TABLE VIII



PSOROPTIC SHEEP SCABIES

As Reported From Respective States	Number of Infected Counties	Number of Infected Flocks	Number of Infected Sheep	Total Inspections	Total Dippings
Alabama	0	0	0	0	0
Arizona	0	0	0	510,134	426
Arkansas	9	24	1,943	26,805	10,587
California	0	0	0	627,709	0
Colorado	0	0	0	37,993	3,142
Connecticut	0	0	0	0	0
Delaware	0	0	0	192	126
Florida	0	0	0	2,562	0
Georgia	0	0	0	0	0
Idaho	0	0	0	30,326	0
Illinois	53	193	11,166	46,478	8,037
Indiana	21	32	1,339	4,431	1,895
Iowa	55	138	11,822	46,326	17,625
Kansas	9	12	1,955	51,811	3,509
Kentucky	2	2	86	15,143	523
Louisiana	0	0	0	294,124	81,743
Maine	1	1	7	7	21
Maryland	1	2	243	510	434
Massachusetts	0	0	0	0	0
Michigan	8	15	2,401	25,108	3,810
Minnesota	10	13	948	1,186	325
Mississippi	1	1	400	177,443	4,439
Missouri	9	10	1,192	7,361	2,964
Montana	0	0	0	0	0
Nebraska	8	12	1,438	7,624	29,255
Nevada	0	0	0	81,795	0
New Hampshire	0	0	0	0	0
New Jersey	6	9	222	12,399	188
New Mexico	0	0	0	1,316,034	28,427
New York	5	11	1,146	1,146	327
North Carolina	0	0	0	0	0
North Dakota	0	0	0	0	0
Ohio	46	126	11,121	14,566	10,947
Oklahoma	0	0	0	320	0
Oregon	0	0	0	7,192	0
Pennsylvania	9	17	706	1,437	810
Rhode Island	0	0	0	0	0
South Carolina	0	0	0	0	0
South Dakota	12	32	3,048	231,913	30,150
Tennessee	4	7	400	30,716	787
Texas	1	1	25	4,610,083	108,815
Utah	0	0	0	352,839	0
Vermont	0	0	0	0	0
Virginia	16	46	4,490	13,466	4,279
Washington	0	0	0	54,320	0
West Virginia	9	15	922	28,758	2,724
Wisconsin	4	5	340	478	406
Wyoming	1	2	45	830,047	133
TOTALS	300	726	57,405	9,500,782	356,854

Goats inspected in Arizona 3,147; California 545; Iowa 2; Mississippi 34; Texas 173,515; Wisconsin 64; Total 177,307.

Goats dipped in Iowa 4; Missouri 17; Texas 2,294; Total 2,315.

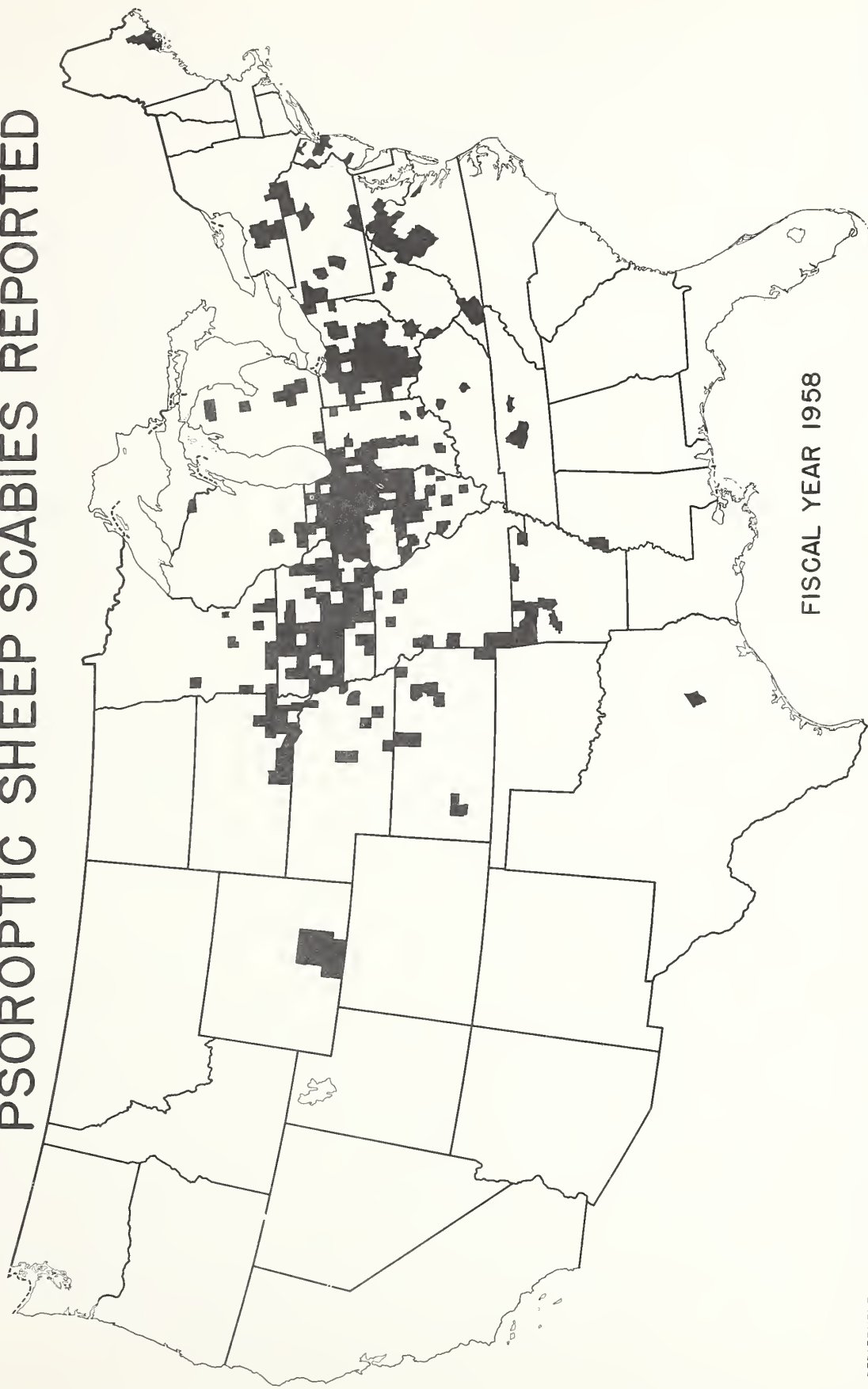
In addition, one flock of 64 goats with psoroptic sheep scabies found in Wisconsin.

TABLE IX





# PSOROPTIC SHEEP SCABIES REPORTED



FISCAL YEAR 1958

FIGURE 31.





Unusually cold weather during early December, 1957 alerted program officials to the possibility of a severe winter whereby screwworm populations would be drastically reduced, and preparations were made to take advantage of any severe weather conditions. Consequently, without interrupting the construction program at Sebring, the screwworm research facilities at Orlando were expanded to maximum capacity and sterile flies were produced there from January through June, and released over southern Georgia and northern Florida.

Florida had the coldest winter on record and this, combined with the release of sterile male flies, has confined screwworm activity to the southern half of Florida with the exception of a localized outbreak in an 18 square mile area in central Alabama, during the latter part of September and October, 1958. Prompt action in initiating screwworm surveys by Georgia, Alabama and South Carolina was of inestimable value to this effort.

Full scale eradication was begun in early July, 1958 following completion of the facilities at Sebring. Production reached the goal of 50 million sterile flies per week in September.

The program has been developed in close cooperation with the States concerned. According to their estimates, non-Federal resources of approximately \$2.7 million will be available for the program in fiscal year 1959, as compared with \$2.5 million Federal funds.

6. Diagnosis, control, and eradication of special diseases.

- a. Fewer sheep found infected with scrapie. Scrapie was diagnosed last year in 7 flocks in 7 counties in Connecticut, Illinois, Indiana, Michigan, Ohio, and West Virginia. Approximately 1,500 flocks are under surveillance, totaling 489,000 sheep as compared with 1705 flocks and 594,675 sheep in fiscal year 1957. The table below compares Federal and State scrapie indemnity payments for the two fiscal years.

	<u>FY 1957</u>	<u>FY 1958</u>
Federal .....	\$329,736	\$111,242
State .....	196,099	60,116

- b. Anaplasmosis control program active. Progress of the anaplasmosis program in Hawaii during the past year indicates that all carrier animals have probably been eliminated. The cooperative program will be continued on a surveillance basis by testing all cattle at time of slaughter, when moved between the Islands, and when being initially tested for brucellosis and tuberculosis. These are classed as screening tests to be assured of anaplasmosis eradication. Testing of imported cattle will be continued.

An investigating team visited St. Croix of the Virgin Islands in connection with a Cooperative Understanding with the Agricultural Research Service for the purpose of study and control of bovine anaplasmosis in the Islands. Their investigation indicates that anaplasmosis is very prevalent and of economic importance. However, they have recommended that preliminaries must be in the field of tick

control as it is the primary vector of the disease. Representatives of the Islands' government have indicated an interest in continuing the project.

The testing and field trial studies of anaplasmosis in the Southern States have been enlarged because of the increased incidence of the disease. Under the cooperative Federal-State experiment project in Tennessee, most herd owners have preferred the test and slaughter method.

Arrangements have been made with the Texas Experiment Station for production of a supply of anaplasmosis antigen.

- c. Close contact with poultry industry and workers engaged in poultry disease research maintained through personal visits and meetings at national, regional and local levels.

Technical training courses developed and conducted. In cooperation with Iowa State College, two poultry disease diagnostic courses were developed and conducted in October, 1957 and April, 1958. These courses were attended by Department veterinary personnel and veterinarians designated by cooperating State livestock sanitary officials. Qualified diagnosticians are now available in 36 States and Puerto Rico.

- d. Laboratory services for animal disease eradication regulatory programs expanded. Expansion of the staffs in the interim diagnostic laboratory at Ames and at the regulatory laboratories at Beltsville is permitting these units to carry out better the functions of histopathological examination of tissue specimens, Brucella antigen development, diagnosis of tuberculosis by laboratory tests, serological testing for brucellosis, parasitological examinations, and other functions.

Technical contracts have been written and negotiated to establish a source of anaplasmosis complement-fixation antigen for the expansion of serological testing program for anaplasmosis of cattle. A source of supply for johnin, an important diagnostic agent, not previously available commercially, has been established.

Standard laboratory procedures for the diagnosis of tuberculosis have been developed and issued to all U. S. laboratories. Better methods of submitting specimens have been devised, a more extensive program to examine specimens undertaken, and a project established for expanded sensitivity and chemical tests of mammalian tuberculin.

Conferences were held in Washington, D. C. and Lincoln, Nebraska to discuss procedures for epizootiological studies of anthrax, and to acquaint Division and State personnel with the latest information on the disease. Standards were established and a manual issued supplying information on further studies of the disease as it exists under field conditions.

Continued surveillance of brucellosis blood and ring test laboratories as well as expansion of leptospirosis surveys and supervision of anaplasmosis testing in selected States has been expanded.



- e. Vesicular exanthema eradication. Forty-seven States now have laws that require garbage to be cooked. Connecticut is the only State not requiring this procedure, but it is expected such a law will be passed at the next session of the legislature, which starts in January, 1959. See Table X for National Status on Control of Garbage Feeding as of June 30, 1958.

7. Interstate transportation of livestock supervised.

- a. Spread of disease frequently prevented by prompt applications of appropriate sanitary control measures. Federal inspection service is maintained at 59 stockyards in 57 cities. At these yards Department employees inspected 23,817,304 cattle, 11,626,207 sheep, and 27,474,827 swine, and supervised the dipping of 341,924 sheep for scabies during the year, in compliance with regulations of this Department and States of destination. A total of 164,471 swine were immunized against hog cholera for movement to farms for stocker and feeder purposes. Veterinarians and trained livestock inspectors examine for disease all animals that pass through these stockyards. The inspectors also supervise the dipping of cattle and sheep for scabies, the cleaning and disinfecting of pens, cars and trucks that have contained diseased animals. Livestock at public stockyards come from widely separated areas and this inspection offers an excellent opportunity to examine for disease a cross section of the livestock population of the country almost daily at a minimum cost. The spread of disease to other herds and premises is frequently prevented by the prompt application of appropriate sanitary control measures. Instances are not uncommon in which the detection of disease in a shipment at a public stockyard is the owner's first inkling of the existence of infection of his premises.
- b. Provision made for specifically approved stockyards and slaughtering establishments as required by Federal regulations effective January 1, 1957. Under the Federal regulations to prevent the spread of brucellosis and paratuberculosis, effective January 1, 1957, provision was made for specifically approved stockyards and slaughtering establishments. Shippers may move cattle interstate into specifically approved markets without having to meet certain requirements prior to such movement; provided, however, that any subsequent movement from such markets must be in compliance with the Federal regulations. As of June 30, 1958, there were 1,209 livestock markets and 1,907 slaughtering establishments on the specifically approved list. This is an increase during the year of 340 livestock markets and 493 slaughtering establishments.
- c. The following statistics show the comparative volume of activity at the public stockyards in the fiscal year 1957 and 1958:

	<u>FY 1957</u>	<u>FY 1958</u>
Number of stockyards operating	59	59
Number of cities in which located	57	57



	<u>FY 1957</u>	<u>FY 1958</u>
<u>Animals inspected:</u>		
Cattle . . . . .	25,994,640	23,817,304
Sheep . . . . .	12,791,764	11,626,207
Swine . . . . .	29,252,660	27,474,827
Total animals inspected . . . . .	68,039,064	62,918,338
 <u>Animals dipped and immunized:</u>		
Cattle dipped . . . . .	2,287	609
Sheep dipped . . . . .	299,474	341,924
Swine immunized . . . . .	173,375	164,471
Total animals dipped and immunized . .	475,136	507,004
 <u>Health certificates issued for</u>		
shipments . . . . .	245,087	260,246
Infectious cars received . . . . .	1,692	955
Cars cleaned and disinfected* . . . .	3,278	1,538
Trucks cleaned and disinfected . . . .	34,869	32,452
Diseased animals received . . . . .	347,277	352,417

(1958 total includes 123,635 brucellosis, 9,252 tuberculosis and 103 paratuberculosis reactors; 219,427 other diseased animals)

\* Includes requests by States and railroads

- d. Twenty-eight Hour Law enforced. The purpose of the 28-Hour Law is to prevent the over-confinement of animals shipped in interstate commerce by common carrier. During the year the Department received 358 reports of alleged violations and recommended prosecution of 211 cases. Penalties of \$18,750 and costs were imposed on 170 violations.
- e. Regulatory laws enforced. All reports of violations of the Federal regulations in the interstate movement of diseased animals are fully investigated. During fiscal 1958, the Department received notices of 366 violations. Prosecution was recommended in 179 cases. Disposition was made by the courts during this period of 96 cases, and fines totaling \$10,050 were imposed. Letters of warning were sent to the parties involved in 49 cases.

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
ANIMAL DISEASE ERADICATION DIVISION  
WASHINGTON, D. C.

NATIONAL STATUS ON CONTROL OF GARBAGE-FEEDING AS OF  
JUNE 30, 1958

State	Premises Feeding Garbage	Number of Swine Fed Garbage	Premises Feeding Cooked Garbage	Number of Swine Fed Cooked Garbage	Number of Swine Fed Raw Garbage	Monthly Inspection
Alabama	407	12,898	407	12,898	0	99
Arizona	89	7,094	80	6,960	134	94
Arkansas	261	8,974	256	8,826	148	100
California	317	203,764	317	203,764	0	98
Colorado	86	37,317	85	37,287	30	99
Connecticut	120	16,374	26	4,675	11,699	94
Delaware	23	1,745	22	1,670	75	100
Florida	746	40,804	722	40,114	690	100
Georgia	422	25,120	405	24,587	533	95
Idaho	92	6,119	92	6,119	0	87
Illinois	192	22,620	192	22,620	0	100
Indiana	79	8,923	79	8,923	0	76
Iowa	72	8,829	72	8,829	0	100
Kansas	189	10,820	189	10,820	0	100
Kentucky	428	14,071	422	14,033	38	86
Louisiana	603	14,427	603	14,427	0	100
Maine	112	10,371	109	10,341	30	88
Maryland	115	16,267	108	15,984	283	100
Massachusetts	458	128,003	373	121,495	6,508	89
Michigan	103	14,332	103	14,332	0	97
Minnesota	97	13,393	97	13,393	0	100
Mississippi	62	6,464	59	6,296	168	83
Missouri	72	11,170	72	11,170	0	100
Montana	29	5,619	29	5,619	0	100
Nebraska	61	5,110	61	5,110	0	100
Nevada	20	3,084	20	3,084	0	100
New Hampshire	87	7,123	64	6,247	876	98
New Jersey	299	153,686	282	149,859	3,827	99
New Mexico	114	5,800	114	5,800	0	100
New York	235	31,389	233	31,108	281	95
North Carolina	631	26,760	631	26,760	0	100
North Dakota	9	921	9	921	0	100
Ohio	364	28,180	364	28,180	0	84
Oklahoma	500	10,122	496	10,096	26	61
Oregon	36	7,058	35	7,052	6	100
Pennsylvania	245	41,477	245	41,477	0	100
Rhode Island	54	8,408	54	8,408	0	100
South Carolina	473	10,980	466	10,885	95	72
South Dakota	42	2,900	42	2,900	0	100
Tennessee	290	16,884	261	15,821	1,063	34
Texas	981	71,423	880	66,405	5,018	86
Utah	62	5,463	59	5,279	184	100
Vermont	65	4,660	60	4,238	422	100
Virginia	399	27,377	399	27,377	0	98
Washington	79	9,328	69	9,248	80	89
West Virginia	154	5,933	150	5,830	103	71
Wisconsin	65	9,572	63	9,230	342	100
Wyoming	27	1,736	27	1,736	0	100
TOTALS	10,466	1,140,892	10,003	1,108,233	32,659	24-100% 24-less than 100%

95.5% of premises feeding cooked garbage  
97.1% of swine fed cooked garbage  
2.9% of swine fed raw garbage

35 States reporting 90% to 100% monthly inspection

TABLE X





Animal Quarantine:

8. Inspections of animal importations increase substantially over previous year. A total of 1,126,534 animal importations were inspected during fiscal year 1958, which is in sharp contrast to the 330,847 animal importations during the preceding year. Increases in cattle importations from Canada and Mexico of 529,462 and 245,860, respectively, accounted for most of the 795,687 (approximately 300%) gain in total animal importations. This large increase in animal importations is taxing the inspection facilities on the Canadian border, and no decrease is anticipated in the foreseeable future. It is certain that the opening of the St. Lawrence Seaway to ocean-going liners will present new problems in maintaining an efficient inspection service. Every effort is being made to prevent the introduction of foreign livestock diseases through these ports. All agencies having similar interests are cooperating in this effort.

To prevent the introduction and dissemination of diseases and pests of foreign origin into the United States, all horses, ruminants, swine, and poultry offered for importation are carefully inspected at coastal, air, and border ports of entry. Certain animals and poultry are quarantined at designated quarantine stations. Valuable assistance in the administration of import regulations is contributed by the Bureau of Customs and the Public Health Service.

The following table lists the animals, including poultry, inspected and passed for entry in fiscal year 1958.

	: Canadian:	Mexican :	:	:	:
	: Border	: Border	: Ocean	:	: Refused
	: Ports	: Ports	: Ports	: Total	: Entry
Animals:	:	:	:	:	:
Cattle	: 589,681:	470,194:	3:	1,059,878:	14,771
Swine	: 2,384:	1:	111:	2,496:	5
Sheep	: 30,670:	- - :	- - :	30,670:	3
Goats	: 14:	- - :	3:	17:	1
Equines	: 25,416:	5,244:	2,656:	33,316:	565
a/Others	: 65:	- - :	92:	157:	5
Total animals	: 648,230:	475,439:	2,865:	1,126,534:	15,350
Poultry	: 23,796:	- - :	4,003:	27,799:	399
	:	:	:	:	:

a/ Includes a wide variety of zoo-type animals.

In addition to the above importations, 2,706 animals for immediate slaughter (cattle, swine, sheep and goats) were inspected and passed for entry into the U.S. Virgin Islands from the British Virgin Islands.

Equines offered for importation from overseas and Mexico, are given careful physical examination by Department veterinarians, and are required to be negative to tests for dourine and glanders (glanders is also transmissible to humans). Approximately 14,729 serum samples

were collected at ports of entry and tested at Department laboratories. Of these, there were 20 positive and 8 suspicious for glanders; and 94 positive and 9 suspicious for dourine.

During the year 496 stray and smuggled Mexican animals (356 equines and 140 cattle) were apprehended as compared with 1,266 in 1957. Thirty-four stray Canadian animals also were apprehended. These were either returned to the country of origin or otherwise disposed of in accordance with Department regulations.

9. Number of animals certified for entry free of duty increased 22%. Certificates as to the purity of breeding were issued for 25,424 animals imported during fiscal year 1958, as compared with 20,822 animals for the previous fiscal year. The purebred animals certified for entry free of duty were, by species, as follows:

	Fiscal Year 1957	Fiscal Year 1958
Horses .....	506	721
Cattle .....	18,713	23,220
Sheep .....	791	725
Swine .....	130	105
Goats .....	-	1
Dogs .....	680	635
Cats .....	2	17
Total ....	20,822	25,424

10. Inspection of imported animal products and forage continues heavy. Sanitary control was maintained over the entry of various animal products, and hay and straw. Products permitted entry under restrictions designed to prevent the introduction into the United States of foot-and-mouth disease, rinderpest, anthrax, or other infectious diseases of animals and poultry were transported from the port of entry under seal to approved destination establishments and there handled and processed under supervision. Railroad cars, trucks, and premises involved in the transportation and handling of restricted products were disinfected.

Department inspectors destroyed all unsterilized hay and straw used as packing material in mail packages and cargo from countries where foot-and-mouth disease or rinderpest exists.

The following table compares activity in fiscal years 1957 and 1958:

Items of Inspection	Fiscal Year 1957	Fiscal Year 1958
Ocean vessels (1st-port-of-call)...	35,744	36,304
Airplanes .....	76,454	89,804
Wool (million pounds) .....	355	276
Animal casings (thousand pounds)..	12,500	13,280
Animal casings disinfected (thousand pounds) .....	344	1,328
Miscellaneous animal by-products (tons) .....	152,000	150,000



In addition, 303 million pounds of hides and skins were permitted entry following inspection during fiscal year 1958.

The landing of fresh, chilled, or frozen meats, from air and ocean transports provisioned in countries where foot-and-mouth disease or rinderpest exists, or garbage derived, therefrom, received special attention. More than 64,889 pounds (14,639 lots) of prohibited and/or restricted meats were seized and disposed of when found aboard ships and airplanes or intercepted at land border stations and post offices.

11. Export animals and transporting vessels inspected. The trend towards the export shipment of livestock to foreign countries by air rather than by ocean vessel continues. This presents an acute inspection problem at some ports of export, inasmuch as individual air shipments are much smaller than shipments by ocean vessel but require in many instances nearly the same inspection time. It has become necessary to assign inspectors at both air and ocean ports to provide proper inspection service. In the fiscal year 1958, a total of 14,774 animals were inspected for export at air and ocean ports (excluding exports to Canada and Mexico).
12. Licenses under the Virus-Serum Toxin Act permitted the production of 126 different biological products as of June 30, 1958. Several products are manufactured in more than one form, so that the total number of biological products was 192. The total number of outlines of production processed during the year was 464. Labels and circulars for licensed biological products reviewed and processed during the fiscal year totaled 2,516 sets, as compared with 2,946 sets in fiscal year 1957. There were 19 permits issued for importation of biological products and 138 for importation or transportation of organisms and vectors.

The progress and anticipated extent of the work is reflected in the following table:



	Actual F.Y. 1958	Estimated F.Y. 1959	Estimated F.Y. 1960
Establishments producing anti-hog-cholera serum and hog-cholera virus	24	24	24
Production (cc):			
Serum (completed product) . . . . .	586,346,036	550,000,000	550,000,000
Virus:			
Simultaneous . . . . .	8,452,258	7,500,000	7,000,000
Hyperimmunizing . . . . .	97,622,584	90,000,000	90,000,000
Inoculating . . . . .	218,840	200,000	199,400
Animal Inspections . . . . .	801,170	798,900	786,800
Tests Supervised . . . . .	3,331	3,100	3,100
Establishments producing hog-cholera vaccine . . . . .	21	22	22
Production (doses) . . . . .	36,786,739	37,142,000	38,000,000
Establishments producing other biologics . . . . .	48	50	52
Production:			
cc . . . . .	808,669,968	852,772,400	900,000,400
Milligrams . . . . .	457,075,281	460,010,400	462,224,000
Units . . . . .	450,315,300	458,702,200	460,110,100
Products destroyed (all kinds):			
cc . . . . .	17,678,799	17,941,600	17,660,300
Milligrams . . . . .	22,109,422	24,176,200	24,406,700
Units . . . . .	172,500	180,200	176,600
Export Certificates Issued . . . . .	741	740	730

1,508 samples of biological products and sub-cultures of organisms were collected and forwarded to Washington laboratories for testing. Included were 1,117 samples of brucellosis vaccine, of which 3.9% was found unsatisfactory when examined. The unsatisfactory batches of vaccine were destroyed under Federal supervision and represented 1,011,818 cc., or enough vaccine to treat 202,363 calves. In the course of 391 purity and safety tests on hog-cholera virus, approximately 6% of the batches tested were suspected of containing the swine-erysipelas organism. None of the lots was found to contain the causative organism of swine erysipelas, however 2.5% of such lots tested in 1957 had contained the causative organism and were destroyed.

The following table shows the volume of biological products certified for export:

Products *	Actual		Estimated	
	F.Y. 1957	F.Y. 1958	F.Y. 1959	F.Y. 1960
	IN THOUSANDS		IN THOUSANDS	
Anti-hog-cholera serum (cc)...	30,378	29,168	28,134	27,000
Other serums (cc) .....	582	439	400	385
Hog-cholera virus (cc) .....	1,037	641	600	580
Antitoxins (units) .....	761	667	700	650
Bacterins .....	5,555	5,244	5,500	5,600
Diagnostics .....	67	34	40	45
Vaccines .....	21,727	16,671	18,000	21,000

\* Doses, unless otherwise indicated

The following table shows comparable figures by fiscal years of the number of handlers operating under the Marketing Agreement and Order:

	Actual		Estimated	
	1957	1958	1959	1960
Producer-handlers .....	30	31	32	32
Distributor-handlers or equivalent, including wholesale producers and handlers .....	266	265	268	270

### MEAT INSPECTION

Current activities: Federal meat inspection assures clean, sound, and wholesome meat for human consumption, free from adulteration, and truthfully labeled. The work consists of inspecting animals and carcasses at the time of slaughter; inspection at all stages of preparation of meat and meat-food products to assure sanitary handling; destruction of condemned product to prevent its use for human food; enforcement of measures that insure informative labeling; inspection of meat and meat-food products offered for importation; and a supervising system of certification to assure acceptance of domestic meats in foreign trade. Meat and meat-food products are examined for compliance with specifications of governmental purchasing agencies; reimbursements are received for the cost of such services. Reimbursements are also received from meat packing establishments for the cost of overtime work performed at their request. Continuous inspection of the manufacture of process or renovated butter is also included under this activity.

#### Selected examples of recent progress:

1. Demand for Federal meat inspection continues to increase. Thirteen hundred plants in 518 cities required meat inspection by the end of fiscal year 1958. Based on current applications for the inspection service and inquiries concerning the inspection requirements, it is estimated that by the end of the current fiscal year there will be an increase of over 4% in the number of plants to be serviced and a similar increase in the number of cities and towns where inspectors will have to be assigned. Establishments continued to use extra shifts to speed up production. The complexity of modern meat merchandising compels many meat packers who previously have been satisfied with a local business to have their products inspected so that they are eligible to move freely in interstate commerce. Chain store merchandising and institutional buying by both military and civilian agencies require delivery of Federally inspected meats.
2. The scope of operations under the meat inspection laws is indicated by the following tables:



# Meat Inspection Activities

At close of Fiscal Years

	1954	1955	1956	1957	1958	Estimated 1959	1960
Number of establishments covered ....	1,067	1,120	1,184	1,244	1,300	1,360	1,400
Number of cities and towns in which establishments were located	410	435	471	502	518	540	555

During Fiscal Years  
(in thousands)

## Antemortem inspection:

Animals passed .....	90,733	98,011	108,354	104,181	97,450	102,654	107,194
Animals suspected .....	189	183	186	164	149	180	190
Animals condemned .....	6	6	6	6	4	5	5
Total animals inspected .....	90,928	98,200	108,546	104,351	97,603	102,839	107,389

## Postmortem inspection:

Carcasses passed .....	90,640	97,913	108,242	104,050	97,339	102,544	107,084
Carcasses condemned .....	282	281	298	295	260	290	300
Total carcasses inspected .....	90,922	98,194	108,540	104,345	97,599	102,834	107,384

## Inspection of animals by species:

### Antemortem inspection (animals)

Cattle .....	18,479	18,729	19,683	20,145	18,581	19,000	19,300
Calves .....	7,480	7,601	7,607	7,769	6,646	6,700	7,000
Sheep and lambs .....	14,369	14,489	14,209	13,919	12,876	13,400	13,800
Goats .....	53	87	86	116	171	170	170
* Horses .....	250	237	180	163	126	120	120
Swine .....	50,297	57,057	66,782	62,240	59,204	63,450	67,000
Total .....	90,928	98,200	108,547	104,352	97,604	102,840	107,390

# Meat Inspection Activities - Continued

During Fiscal Years (continued)  
(In thousands)

	1954	1955	1956	1957	1958	Estimated
						1959 1960
<u>Inspection of animals by species:</u>						
(Continued)						
Postmortem inspections (Carcasses)						
Cattle .....	18,476	18,725	19,680	20,142	18,579	18,998 19,298
Calves .....	7,479	7,601	7,606	7,768	6,644	6,698 6,998
Sheep and lambs .....	14,368	14,489	14,209	13,918	12,876	13,398 13,798
Goats .....	53	87	86	116	171	170 170
* Horses .....	250	237	179	162	126	120 120
Swine .....	50,296	57,055	66,780	62,239	59,203	63,450 67,000
Total .....	90,922	98,194	108,540	104,345	97,599	102,834 107,384

\* Horses are slaughtered and their meat is identified as such. Their meat is handled and prepared in separate establishments from those handling cattle, calves, sheep, swine and goats.

## Meat and Meat Food Products Prepared and Processed Under Federal Inspection by Fiscal Years

Fiscal Year	Pounds
1954	14,833,471,229
1955	16,373,853,029
1956	18,207,298,082
1957	17,804,070,049
1958	16,791,996,515
1959 (est.)	17,500,000,000
1960 (est.)	18,000,000,000

Meat and Meat Food Products Prepared and Processed Under Supervision  
Classified by Type of Product (In thousand pounds)

	<u>FY 1955</u>	<u>FY 1956</u>	<u>FY 1957</u>	<u>FY 1958</u>
Placed in cure:				
Beef .....	164,672	168,475	162,948	158,949
Pork .....	3,451,336	3,704,633	3,491,198	3,298,386
Other .....	1,958	1,627	1,449	1,166
Smoked and/or dried:				
Beef .....	60,244	57,064	60,477	53,446
Pork .....	2,439,226	2,637,949	2,515,708	2,333,875
Cooked meat:				
Beef .....	73,101	79,769	87,705	87,674
Pork .....	307,671	312,782	313,338	295,319
Other .....	4,966	3,945	3,222	3,086
Sausage:				
Fresh finished .....	221,701	238,390	237,881	223,195
To be dried or semidried ....	130,224	141,755	142,619	134,505
Frankfurters, weiners .....	583,979	633,253	663,400	649,665
Other .....	615,357	619,392	624,880	622,793
Loaf, headcheese, chile con carne .....	199,550	206,698	207,542	204,895
Steaks, chops, roasts .....	647,475	701,945	652,392	558,367
Meat extract .....	2,351	1,901	2,243	2,117
Sliced bacon .....	870,460	998,599	980,138	911,016
Sliced other .....	124,921	165,258	201,119	235,205
Hamburger .....	146,648	163,468	221,002	186,463
Miscellaneous meat products ...	57,491	71,865	90,079	114,613
Lard:				
Rendered .....	1,905,964	2,186,137	2,050,770	1,863,983
Refined .....	1,422,965	1,657,601	1,636,910	1,426,331
Oleo stock .....	114,268	108,576	84,667	65,708
Edible tallow .....	153,329	185,132	242,140	288,050
Rendered pork fat:				
Rendered .....	104,059	115,007	102,927	92,461
Refined .....	62,007	62,859	51,878	50,937
Compound containing animal fat .....	504,921	578,097	688,310	688,083
Oleomargarine containing animal fat .....	36,654	54,078	76,049	70,815
Canned products .....	1,915,941	2,307,407	2,167,722	2,138,840
Horse meat products:				
Cured .....	7,102	4,543	7,072	4,463
Chopped .....	21,734	20,053	15,578	15,107
Edible oil .....	352	- -	- -	- -
Canned horse meat .....	21,226	18,990	20,707	12,484



Examination of Meat and Meat Food Products for Other Government Agencies (Reimbursable)  
(In thousand pounds)

<u>Branch of Government</u>	<u>FY 1955</u>	<u>FY 1956</u>	<u>FY 1957</u>	<u>FY 1958</u>	<u>(Est.) FY 1959</u>
Department of Agriculture:					
Agricultural Marketing Service .....	23	3,445	15,919	3,369	10,000
Commodity Stabilization Service .....	9,566	207,865	111,112	21,537	50,000
Forest Service .....	65	203	237	237	240
Department of Commerce:					
Civil Aeronautics Administration ...	63	71	24	5	10
Maritime Administration .....	18	238	17	--	5
Department of the Interior:					
Alaska Road Commission .....	--	1	--	--	--
Fish and Wild Life .....	13	192	167	153	160
Bureau of Indian Affairs .....	8	126	158	436	450
Department of Health, Education and Welfare:					
Public Health Service .....	365	2,322	2,412	2,408	2,400
Department of Justice:					
Bureau of Prisons .....	56	125	131	130	130
Department of the Army .....	171,373	192,526	204,148	183,932	200,000
Coast Guard .....	48	47	22	6	10
Marine Corps .....	73	68	17	2	10
Department of the Navy .....	280,986	156,633	229,848	220,572	225,000
General Services Administration .....	107	1,182	784	267	400
Veterans' Administration .....	21,291	30,776	30,290	30,630	31,000
<b>Total .....</b>	<b>a/484,055</b>	<b>b/595,820</b>	<b>c/595,286</b>	<b>d/463,684</b>	<b>519,815</b>

- a/ Includes 6,716 thousand pounds rejected.  
b/ Includes 5,209 thousand pounds rejected.  
c/ Includes 4,323 thousand pounds rejected.  
d/ Includes 2,778 thousand pounds rejected.

Summary of Samples Examined in Laboratories for Determination  
of Adulteration or other Objectionable Conditions, Fiscal Year 1958

	<u>Number Examined</u>	<u>Reported Adversely</u>
Meat and meat food product .....	19,227	3,250
Edible fats and oils .....	381	28
Binders (cereal, dried skim milk, soya flour) .....	1,212	31
Seasonings (spices, flavorings) .....	6,340	144
Curing materials .....	1,871	19
Miscellaneous .....	2,277	127
Samples of animal foods .....	109	7
Imports .....	<u>2,015</u>	<u>48</u>
Total .....	33,432	3,654

Examination of Labels and Sketches

	<u>FY 1957</u>	<u>FY 1958</u>
Number of labels and sketches approved .....	35,775	39,565
Number of labels approved for imported meat ...	926	1,116
Number of labels and sketches refused approval .....	<u>2,167</u>	<u>3,247</u>
Total number of labels and sketches reviewed .....	38,868	43,928

Inspection of Imported Meat and Meat Food Products

<u>Fiscal Year</u>	<u>Pounds</u>
1954	334,326,990
1955	278,837,336
1956	277,479,030
1957	361,569,278
1958	477,506,265
1959 (est.)	525,000,000

3. Methods devised and improved to guard against harmful chemical additives and adulteration in meat products and to set up adequate control procedures. There continues to be a marked increase in the number and kind of chemical additives prepared by the chemical and drug industries and offered for use in meat products. Public concern was reflected in enactment of Federal and legislation to control such additives in foods. The use of tranquilizers for meat producing animals has required focusing attention on the possible adverse affects to the consumer from the use of such drugs. The possible adulteration with pesticidal residues, growth promoting substances, antibiotics, etc. is of continuing concern. These additives contribute in many ways to the processing, quality, packaging, and merchandising of the products. Not only have procedures been put into effect which assure against the use of harmful additives or which conceal inferior product quality or adulteration of meat and meat food products, but also, there is an increased awareness of the potential adulteration by the use of certain chemicals in the preparation of meat and meat food products as well as those chemicals used on, around, or in connection with food animals.
4. Specimens of diseased tissue examined. During the past year 2,518 examinations of questionable material were made in servicing the needs of inspectors. This was 861 or 52% more than the year before. These included histopathological diagnoses, biological assays, serological identifications, bacteriological evaluations and parasite viability determinations. A wide variety of pathological conditions were diagnosed.
5. Continued activity in meat packing plant renovation and construction. During fiscal year 1958 there was strong continuing activity in remodeling of meat packing plants and the planning of new plants. These will result in improving the facilities of the meat packing industry to better service the future livestock economy.

A comparison for the fiscal years 1957 and 1958 follows:

	<u>FY 1957</u>	<u>FY 1958</u>
Number of new applications received	189	165
Total number of plans approved for new plants	160	146
Number of plans approved for extension of plants	not available	40



(b) State Experiment Stations

	Payments to States, Hawaii, and Puerto Rico	Penalty Mail	Total
Appropriation Act, 1959, and base for 1960 .....	\$31,553,708	\$250,000	\$31,803,708
Budget Estimate, 1960 .....	<u>31,553,708</u>	<u>250,000</u>	<u>31,803,708</u>

PROJECT STATEMENT

Project	1958	1959 (estimated)	1960 (estimated)
1. <u>Payments to States, Hawaii, and Puerto Rico:</u>			
a. Hatch Act, as amended by the Act of August 11, 1955 .....	\$29,821,658	\$31,053,708	\$31,053,708
b. Agricultural Marketing Act (Title II), sec. 204(b) (August 14, 1946) .....	500,000	500,000	500,000
Total, Payments to States, Hawaii, and Puerto Rico .....	30,321,658	31,553,708	31,553,708
2. <u>Penalty Mail</u> .....	250,000	250,000	250,000
Total pay act costs (P. L. 85-462)	[26,450]	[62,500]	[62,500]
Total obligations or estimate .....	30,571,658	31,803,708	31,803,708
Unobligated balance .....	19,653	- -	- -
Transferred to "Salaries and Expenses, Agricultural Research Service" .....	12,397	- -	- -
Total appropriation or estimate ...	30,603,708	- -	- -

CHANGE IN LANGUAGE

The estimates include a proposed change in the language of this item as follows (deleted matter enclosed in brackets):

STATE EXPERIMENT STATIONS

Payments to States, Hawaii, [Alaska,] and Puerto Rico: For payments to agricultural experiment stations \* \* \* in all, \$31,553,708.

It is proposed to delete the word "Alaska" from the title of this subappropriation since Alaska has become a State. This change will not affect in any way the payments to Alaska from this appropriation.



STATUS OF PROGRAM

General: This appropriation represents the Federal Government's contribution to the State, Territorial, and Puerto Rican agricultural experiment stations, established pursuant to the provisions of the Hatch Act of 1887.

The State agricultural experiment stations conduct research and experiments along lines authorized by the Hatch Act, as amended, on the problems constantly encountered in the development of a permanent and sustaining agriculture and in improvement of the economic and social welfare of rural families. Because of differences in climate, soil, market outlets, and other local conditions, each State has distinct problems in the production and marketing of crops and livestock. The farmers in the individual States naturally look to their State agricultural experiment stations for solution of the State and local problems, and in recent years have requested increased service to help meet changing conditions.

Research programs at the State stations, to be most effective, include participation in regional and national programs. Joint attack by a group of State stations is the most effective and often the only practical approach to problems of common interest. The stations, to an ever increasing extent, are acting together as regional groups to provide cooperative coordinated attacks on problems of regional and national interest. In a similar manner, the research programs of the State agricultural experiment stations and the Department of Agriculture are supplementary and interdependent.

Federal-grant funds constitute a powerful force in bringing about inter-State cooperation and Federal-State collaboration in the planning and conduct of this over-all program of agricultural research. Therefore, the full impact of the Federal-grant funds cannot be fully evaluated solely on the basis of the amount of funds provided.

Research at State stations during the fiscal year 1958 included approximately 5,870 specific lines of research financed wholly or in part by Federal-grant funds and about 6,450 lines of research under non-Federal funds. These lines of research are continued as long as they are productive. Fifteen to 18% of the research program passes its point of maximum productiveness annually and is replaced by new research on pressing problems.

Distribution of Payments: The Hatch Act, as amended on August 11, 1955, provides that the distribution of Federal payments to States for fiscal year 1955 shall become a fixed base and that any sums appropriated in excess of the 1955 level shall be distributed in the following manner:

- 20% shall be allotted equally to each State.
- not less than 52% shall be allotted to each State as follows:
  - one-half in an amount proportionate to the relative rural population of each State to the total rural population of all States, and
  - one-half in an amount proportionate to the relative farm population of each State to the total farm population of all States.



These populations shall be determined by the last preceding decennial census current at the time each such additional sum is first appropriated.

-not more than 25% shall be allotted to the States for cooperative research in which two or more State agricultural experiment stations are cooperating to solve problems of the agriculture of more than one State.

-3% shall be available to the Secretary of Agriculture for the administration of this Act.

The amended Act also provides that any amount in excess of \$90,000 available for allotment to any State, exclusive of the regional research fund, shall be matched by the State out of its own funds for research, and for the establishment and maintenance of facilities necessary for the prosecution of such research.

The amended Hatch Act retains the requirement for marketing research as it existed in fiscal year 1955 and provides that 20% of the funds appropriated in excess of the 1955 appropriations shall be used for conducting marketing research projects approved by the Department of Agriculture. In addition, Section 204(b) of the Agricultural Marketing Act also authorizes payments to State agricultural experiment stations on a matching basis for cooperative projects in marketing research.

Table A shows the distribution of Federal payments to States and non-Federal funds for research at State agricultural experiment stations for fiscal year 1958. Table B shows the appropriations for State Experiment Stations for the fiscal years 1958, 1959, and estimated for 1960. Table C shows the approximate distribution of Federal and non-Federal funds by fields of research during F. Y. 1958.

Table A

Distribution of Federal Payments to States for Research  
at State Agricultural Experiment Stations

FISCAL YEAR 1958

State	Hatch Act, as amended	Section 204(b) Agricultural Marketing Act	Total Federal Funds	Non-Federal Funds	Grand Total
Payments to States, Hawaii, and Puerto Rico:					
Alabama.....	\$ 675,365	\$ 6,000	\$ 681,365	\$ 1,864,818	\$ 2,546,183
Alaska.....	192,838	8,500	201,338	219,344	420,682
Arizona.....	248,108	6,000	254,108	1,112,480	1,366,588
Arkansas.....	568,704	2,500	571,204	1,820,351	2,391,555
California.....	640,888	16,500	657,388	10,536,210	11,193,598
Colorado.....	302,297	5,000	307,297	1,044,600	1,351,897
Connecticut.....	252,980	9,000	261,980	1,288,194	1,550,174
Delaware.....	204,492	3,500	207,992	482,972	690,964
Florida.....	382,280	17,000	399,280	4,820,806	5,220,086
Georgia.....	702,810	9,000	711,810	2,816,242	3,528,052
Hawaii.....	230,850	---	230,850	770,749	1,001,599
Idaho.....	269,570	---	269,570	977,174	1,246,744
Illinois.....	664,571	7,550	672,121	2,770,301	3,442,422
Indiana.....	579,904	40,500	620,404	3,079,469	3,699,873
Iowa.....	582,882	34,450	617,332	2,884,151	3,501,483
Kansas.....	431,938	27,660	459,598	2,103,286	2,562,884
Kentucky.....	697,676	14,000	711,676	1,655,560	2,367,236
Louisiana.....	500,911	3,500	504,411	2,833,884	3,338,295
Maine.....	277,658	22,000	299,658	409,236	708,894
Maryland.....	334,282	7,000	341,282	1,064,639	1,405,921
Massachusetts.....	312,791	---	312,791	615,110	927,901
Michigan.....	633,732	84,601	718,333	3,085,451	3,803,784
Minnesota.....	564,837	---	564,837	2,973,448	3,538,285
Mississippi.....	683,356	11,500	694,856	1,571,188	2,266,044
Missouri.....	622,070	42,000	664,070	1,550,230	2,214,300
Montana.....	262,962	---	262,962	1,393,200	1,656,162
Nebraska.....	385,933	8,000	393,933	1,847,250	2,241,183
Nevada.....	191,684	---	191,684	200,412	392,096
New Hampshire.....	225,395	---	225,395	201,398	426,793
New Jersey.....	306,763	7,750	314,513	1,848,276	2,162,789
New Mexico.....	262,074	---	262,074	617,921	879,995
New York.....	650,063	---	650,063	5,536,123	6,186,186
North Carolina.....	922,278	---	922,278	2,127,756	3,050,034
North Dakota.....	312,525	---	312,525	1,078,094	1,390,619
Ohio.....	750,578	11,750	762,328	2,506,626	3,268,954
Oklahoma.....	487,779	6,000	493,779	1,726,208	2,219,987
Oregon.....	341,297	14,000	355,297	2,577,774	2,933,071
Pennsylvania.....	826,236	3,000	829,236	1,770,430	2,599,666
Puerto Rico.....	630,497	---	630,497	1,486,790	2,117,287
Rhode Island.....	199,980	---	199,980	209,820	409,800
South Carolina.....	552,928	---	552,928	992,860	1,545,788
South Dakota.....	310,229	8,500	318,729	981,335	1,300,064
Tennessee.....	704,722	2,500	707,222	1,042,506	1,749,728
Texas.....	937,927	18,925	956,852	4,237,934	5,194,786
Utah.....	236,754	---	236,754	873,114	1,109,868
Vermont.....	235,268	---	235,268	178,069	413,337
Virginia.....	624,701	---	624,701	1,702,548	2,327,249
Washington.....	379,724	26,814	406,538	2,874,097	3,280,635
West Virginia.....	478,590	2,500	481,090	515,553	996,643
Wisconsin.....	576,166	---	576,166	3,464,223	4,040,389
Wyoming.....	214,284	12,500	226,784	618,269	845,053
Total.....	23,565,127	500,000	24,065,127	96,958,479	121,023,606
Regional Research Fund.....	5,600,000	---	5,600,000	---	5,600,000
Administration.....	656,531	---	656,531	---	656,531
Transfer to "Salaries and Expenses" to meet Pay Act Costs (P.L. 85-462).....	12,397	---	12,397	---	12,397
Unobligated Balance.....	19,653	---	19,653	---	19,653
Subtotal.....	29,853,708	500,000	30,353,708	96,958,479	127,312,187
Penalty Mail:					
Reimbursement to Post Office Department for penalty mail costs of State experiment station directors.....	250,000	---	250,000	---	250,000
Grand Total.....	30,103,708	500,000	30,603,708	96,958,479	127,562,187





Table B

## Appropriations for State Experiment Stations

Fiscal Years 1958-1960

State	Fiscal Year 1958	Fiscal Year 1959	Fiscal Year 1960 (Estimated)
Payments to States, Hawaii, and Puerto Rico:			
Alabama.....	\$ 675,365	\$ 701,993	\$ 701,993
Alaska.....	192,838	198,093	198,093
Arizona.....	248,108	255,682	255,682
Arkansas.....	568,704	590,803	590,803
California.....	640,888	664,897	664,897
Colorado.....	302,297	312,306	312,306
Connecticut.....	252,980	271,674	271,674
Delaware.....	204,492	210,306	210,306
Florida.....	382,280	395,364	395,364
Georgia.....	702,810	730,367	730,367
Hawaii.....	230,850	237,835	237,835
Idaho.....	269,570	278,286	278,286
Illinois.....	664,571	690,170	690,170
Indiana.....	579,904	602,963	602,963
Iowa.....	582,882	605,310	605,310
Kansas.....	431,938	447,413	447,413
Kentucky.....	697,676	725,228	725,228
Louisiana.....	500,911	519,667	519,667
Maine.....	277,658	286,518	286,518
Maryland.....	334,282	345,414	345,414
Massachusetts.....	312,791	322,760	322,760
Michigan.....	633,732	657,836	657,836
Minnesota.....	564,837	586,625	586,625
Mississippi.....	683,356	710,856	710,856
Missouri.....	622,070	646,350	646,350
Montana.....	262,962	271,263	271,263
Nebraska.....	385,933	399,571	399,571
Nevada.....	191,684	196,947	196,947
New Hampshire.....	225,395	232,040	232,040
New Jersey.....	306,763	316,631	316,631
New Mexico.....	262,074	270,380	270,380
New York.....	650,063	674,413	674,413
North Carolina.....	922,278	959,622	959,622
North Dakota.....	312,525	323,018	323,018
Ohio.....	750,578	779,600	779,600
Oklahoma.....	487,779	505,668	505,668
Oregon.....	341,297	352,872	352,872
Pennsylvania.....	826,236	857,357	857,357
Puerto Rico.....	630,497	660,885	660,885
Rhode Island.....	199,980	205,537	205,537
South Carolina.....	552,928	574,079	574,079
South Dakota.....	310,229	320,606	320,606
Tennessee.....	704,722	732,709	732,709
Texas.....	937,927	975,292	975,292
Utah.....	236,754	243,946	243,946
Vermont.....	235,268	242,360	242,360
Virginia.....	624,701	648,598	648,598
Washington.....	379,724	392,890	392,890
West Virginia.....	478,590	495,888	495,888
Wisconsin.....	576,166	598,286	598,286
Wyoming.....	214,284	220,534	220,534
Subtotal.....	23,565,127	24,445,708	24,445,708
Regional Research Fund <sup>a</sup> .....	5,600,000	5,900,000	5,900,000
Administration.....	656,531	708,000	708,000
Transfer to "Salaries and Expenses" to meet Pay Act Costs (P.L. 85-462).....	12,397	--	--
Unobligated balance.....	19,653	--	--
Payments authorized for Marketing Research, Section 204(b), Agricultural Marketing Act.....	500,000	500,000	500,000
Subtotal.....	30,353,708	31,553,708	31,553,708
Penalty mail: Reimbursement to Post Office Department for penalty mail costs of State experiment stations directors.....	250,000	250,000	250,000
Grand Total.....	30,603,708	31,803,708	31,803,708

<sup>a</sup>/Allotted to States by projects on the basis of recommendations by a committee of experiment station directors and approved by the State Experiment Stations Division, Agricultural Research Service.



TABLE C

Distribution of Federal-Grant Payments to States by Fields  
of Research at State Agricultural Experiment Stations

Fiscal year 1958

Field of Research	Federal-Grant Funds	Non-Federal Funds
Agricultural Engineering . . . . .	\$ 890,000	\$ 2,812,000
Animal Diseases and Parasites . . . . .	1,543,000	5,430,000
Farm Economics and Adjustment . . . . .	1,305,000	2,521,000
Field Crops . . . . .	3,975,000	15,319,000
Horticultural Crops . . . . .	1,572,000	12,023,000
Home Economics and Human Nutrition . . . . .	1,899,000	2,812,000
Insect Control . . . . .	1,572,000	3,490,000
Livestock and Poultry . . . . .	5,191,000	26,760,479
New and Expanded Uses of Agricultural Products . . . . .	979,000	4,557,000
Plant Diseases . . . . .	1,602,000	5,721,000
Soil and Water Conservation . . . . .	3,085,000	10,375,000
Forest Crops . . . . .	267,000	1,260,000
Marketing (Domestic) . . . . .	5,785,127	3,878,000
Total Obligations . . . . .	<u>\$29,665,127</u>	<u>\$96,958,479</u>
Administration . . . . .	656,531	--
Penalty Mail . . . . .	250,000	--
Transfer to Salaries and Expenses to meet Pay . . . . .		
Act Costs (P.L. 85-462) . . . . .	12,397	--
Unobligated Balance . . . . .	<u>19,653</u>	<u>--</u>
Total Appropriation . . . . .	\$30,603,708 <u>1/</u>	\$96,958,479

1/ Includes \$500,000 Section 204(b) Agricultural Marketing Act Funds.





Selected Examples of Recent Progress

1. Disease resistance mechanism in plants studied.—Recent station research has shown that plants are protected against diseases by mechanisms similar to those found in animals. Plants resistant to a disease produce powerful antibiotics that stop the growth of the disease-causing organism. Those that cannot produce the appropriate antibiotic succumb to the disease. The Indiana station has isolated several groups of the disease-repelling antibiotics. Present research seeks more knowledge about the structure of the antibiotics found, their stimulus for production, pathway through the plant system, application to breeding resistant varieties, and possible use in chemo-therapy. Basic research in this area is particularly vital to the never ending search for breeding strains of economic crops resistant to the ravages of plant diseases.
2. New field of biochemistry emerges.—The abundance of carbohydrates (starches, cellulose, pectins and other sugars) present in nature, their economic value, and the essential role they play in living organisms has stimulated attempts to discover how living cells build up and break down carbohydrates. Scientists of the California station, working with annual plants of the Palsam family, have identified the part played by certain compounds in the manufacture of sugars within higher plants. One of these compounds, known as Uridine diphospho glucose contributes to sucrose synthesis inside the plants. As a result of this research, scientists may soon have the complete answer to how compounds such as the zylans, arabans, cellulose and pectins are manufactured in nature. This group of scientists was the first to isolate the nucleotide derivatives of zylose and arabinose in higher plants. Out of this basic research is emerging a new field of biochemistry, nucleotide derivatives, in which reside the secrets of the biosynthesis of several important biological compounds. This research will lead to a better understanding of the basic life processes that take place in plants and animals and, hence, will contribute greatly to agriculture and to the industries that produce and utilize these plant materials.
3. Basic finding steps up beta-carotene production.—Carotene is now recognized as an important source of vitamin A in poultry and livestock rations, and as a natural coloring agent in shortening, dairy, and other food products. Research observations made by a West Virginia station mycologist greatly improved the chance of commercial beta-carotene production through the proper mating of selected strains of micro-organisms in the mold family. Mating different strains of the mold, Choanephora cucurbitarum, produced 15 to 20 times more beta-carotene than either strain alone. The substance responsible for greater carotene production in the mated molds was shown to be secreted by mycelium of the opposite sex. This basic finding has been used in utilization research of the Department to develop a new technique for production of beta-carotene.



4. New curing process for binder leaf tobacco developed.---From information obtained in a basic study, the Connecticut station developed a process which may replace traditional harvesting and curing operations for cigar tobacco. Green tobacco leaves are chopped into small pieces, dried, and treated with an oxidizing agent. The finely-chopped mixture then is fabricated into a paper like sheet for use as a cigar binder. The use of this process does not require carefully hand harvested and cured leaves. Therefore, mechanical harvesting combined with the chemical curing process developed here offer sizeable savings of labor and time to tobacco growers. This development can help stabilize the cigar tobacco situation in Connecticut.
5. Consumers pay premium for meat-type pork.---American consumers prefer meat-type pork over fat-type pork according to a study by the Indiana station. A livestock marketing association, a meat packer, and a chain of supermarkets cooperated with the station's marketing specialists in getting the facts. These indicate that when meat-type pork is produced in quantity and identified to consumers, they are willing to pay a premium for it. This premium plus the higher cut-out value should result in higher returns to producers of meat-type hogs.
6. Marketing study lowers corn discount rate.---An analysis of marketing costs and prices made by the Ohio station showed that there are greater differences in corn price spreads between local markets and Chicago than for any of the other grains. The Ohio economists also found considerable differences between price spreads of cash grains (wheat and soybeans,) and feed grains, (corn, and oats). Extension and marketing programs resulting from this research have induced at least one large marketing organization to cut corn discount rates considerably this past year. This work was conducted under funds available under section 204(b) of the Agricultural Marketing Act.
7. Industrial gums made from corn starch.---The Minnesota station has established the structural specifications of naturally occurring, industrially important, plant gums now imported in large amounts. Gum and resin-like products are now being made from corn starch by simple chemical modifications, and it is believed that these discoveries will provide a new outlet for surplus crops of corn and other starch containing cereal grains.
8. Range reseeding, a good investment.---A beneficial cost ratio of better than 3 to 1 may be expected from range reseeding in northeastern Nevada, farm economists of the University of Nevada have shown in a regional study of costs and returns. Establishment costs per acre were \$8.03, with sagebrush spraying the 7th and 14th year requiring an additional \$4, bringing total costs to \$12.03. With a 20-year life expectancy for a reseeding, the amortized annual cost per acre, including interest at  $4\frac{1}{2}\%$  on capital expenditures, was \$0.84. The average cost per animal unit month from range reseeding was \$2.94 as compared with returns of \$9.60 per animal unit month. These benefits were based on yearling steers that gained 2 pounds per day when grazed on the reseeded range.



9. Smooth leaf strain of cotton developed.-- A smooth-leaf strain of cotton developed by the Mississippi station brought higher returns per acre than any of the 11 best adapted regular varieties grown in a series of tests. Over a 3-year period lint returns of the smooth-leaf variety averaged \$40 more per acre than the average of its 11 hairy-leaf competitors. Differences were due to the superior quality of lint, since the total yield of seed cotton was higher for the other varieties. Incorporation of the smooth-leaf trait in cotton generally would benefit both growers and processors.
10. Pelleting may revolutionize hay handling.--The Wisconsin station is engaged in research that may revolutionize hay harvesting and handling. Hay is being pressed into large pellets which can be put in ordinary conveyors. Required storage space is 1/5 to 1/6 that necessary for long or chopped hay, and 1/2 to 1/3 that needed for baled hay. Storage space for hay pellets is not only less expensive but is less subject to wind and fire loss. Freight cars and trucks can be loaded to maximum weight capacity rather than be limited by bulk capacity. Preliminary feeding trials indicate dairy cattle do very well when fed on pellets. Sheep also take pellets readily.
11. Non-residual herbicide cuts costs.--In the past year several stations reported success with the chemical monuron as a weedicide. It does not build up in the soil and poison it. The Delaware station used monuron at recommended rates on identical asparagus beds for 7 years without residue being carried over a single season. The California station at Riverside found monuron to be a safe weedicide in citrus orchards without doing damage to the trees. Single applications of monuron at the rate of 2 pounds per acre controlled annual weeds for periods of 3 to 6 months. Spring and fall applications at the rate of 2 pounds per acre each year will provide complete control indefinitely. Monuron saves growers about \$15 per acre per year, which is about half the cost of cultural methods.
12. Discovery may halve cost of baby pig supplement.--Natural enzymes enable baby pigs 5 days to 5 weeks old, to digest milk proteins more efficiently than vegetable proteins. Experiments in swine nutrition carried on at the Iowa station have shown that pepsin added to the ration of baby pigs will enable them to grow faster on the vegetable proteins. The cost of pepsin, however, has been too high for profitable farm use. In the past year the station ran trials in which microbial enzymes were substituted for pepsin. The pigs receiving the microbial enzymes gained as fast and efficiently as those whose rations were supplemented with pepsin. Although cost of the microbial and fungal enzymes cannot be figured until available commercially, the Iowa Station estimates that enzyme substitution for pepsin may result in halving the costs.

13. Fly control obtained with a systemic method.---Relief from flies that congregate under laying hen cages appears in sight as a result of research findings reported by the Texas station. Common flies breed in droppings under untreated cages, causing not only a nuisance but also marked reductions in egg production. The Texas station has found that when 6 pounds of Polybor 3, a relatively inexpensive chemical, is mixed with a ton of poultry mash and fed to the laying hens, fly populations under the cages are reduced by almost 100%. Good results were also obtained in a later experiment when only 3 pounds of Polybor 3 were added. Further trials are under way to make sure the method is safe and to determine the exact amount that can be recommended to Texas farmers.
14. Economic value of controlling evaporation.---A larger proportion of water is lost in cornfields through evaporation than through transpiration, new research shows. Experiments at the Illinois station show that as much as 50% of the total water loss in a cornfield is due to soil water evaporation. When evaporation from the soil surface was experimentally controlled by means of a water-tight cover, corn yielded 125 bushels per acre with only the water stored in the soil profile at the beginning of the growing season. Total water use during the growing season was reduced by 50%. The Nebraska station also showed that 10 to 15 thousand gallons of water are required to produce a bushel of corn on dry land, about 5,000 gallons per bushel with efficient irrigation, and about 2,500 gallons of water per bushel where means are provided to retard evaporation loss. This research points to the importance of sub-soil moisture and water evaporation from the soil as factors affecting corn production under Midwest conditions.

#### Regional Research Fund

For the conduct of research in which two or more State agricultural experiment stations are cooperating to solve problems that concern the agriculture of more than one State, there is available the "Regional Research Fund" authorized by Section 3(c) (3) of the Hatch Act, as amended, (formerly Section 9(b) (3) of the Bankhead-Jones Act). This fund will total \$5,900,000 in 1959. Of the amount appropriated in excess of the 1955 fixed base, not more than 25% is allotted to this fund. Allotments are made to stations on the basis of projects recommended by the Committee of Nine established by the Act to represent the State stations.

The following are examples of work carried in 1958 under this fund:

1. Regional dairy marketing research finds immediate use.---Farmers, dairy plant operators, and retailers of dairy products are finding immediate use for the results of cooperative regional research by 13 North Central States and several Department agencies. A milk assembly cost study in the Wichita, Kansas, market was used to realize substantial reductions in hauling charges, with estimated savings to farmers of about \$180,000 per year, and adjustments in route organization. Results of a South Dakota milk and cream study



were widely used by creameries in the area to determine the feasibility of shifting to whole milk and in deciding what methods of operations to use. Regional research on expanding milk consumption in schools played a part in increasing milk consumption in Illinois schools from 16.6 quarts annually per student in 1954 to 28 quarts in 1957. Coordinated studies of the handling of surplus milk in about 100 of the leading fluid milk markets in the region also will prove helpful to all segments of the dairy industry.

2. Environment places heavy stress on range livestock.--The effects on livestock of extreme ranges in altitude, temperature, and availability of feed and water are being evaluated in a fundamental study conducted cooperatively by 10 Western States and the Department. The Nevada station found starvation to be the principal cause of death in snowbound sheep, and in survival cases the supplementation (kind and amount of feed) after extreme deprivation is most important for sheep recovery. Changes in the levels of certain blood constituents afford a simple method for determining nutritional stress. Colorado studies show altitude has a marked effect on hemoglobin level, carotene conversion (vitamin A), and the differential blood picture of both cattle and sheep. Lambs grazing at high altitudes develop stiffness. Arizona researchers found vitamin A deficient cattle more uncomfortable at high temperatures, and blood studies show an alteration of blood constituents as a result of thermal stress. Studies of white muscle disease (muscular dystrophy) at Oregon and Idaho reveal that some factor other than vitamin E is involved. Electrocardiography was found to be a useful tool in these studies. Information derived from these fundamental studies of the stresses imposed on animals also will have application in public health.
3. New techniques aid study in soil structure.--Cooperative regional effort by all of the States, Territories, and several Federal agencies is adding new knowledge of the forces bonding soil particles and the effects of soil structural changes on plant growth. At Cornell, swelling pressures of pure clay systems were measured to determine the dual nature of clays, while at New Jersey a radio-active cobalt technique was used to show that particle bonding is a dynamic process related to microbial action. A mercury porosimeter was developed at Maryland to measure soil pores and determine how aggregates of soil are formed and destroyed. Work at 11 North Central stations resulted in the knowledge that air permeability, microelectrode, and sonic picnometer methods are better for relating soil structure with plant growth than the older sieving and crushing methods. An alcohol-water stability technique gave good discrimination among different structural treatments in Utah and Washington. Through the regional approach, the stations are comparing these methods and compiling the basic data needed to understand why soils react as they do under physical stress and what practices are effective in maintaining optimum soil structure.



4. Human intake of foods other than protein not adequate.---Dietary and biochemical data from 11 Western States were organized for analysis by the Colorado station. Studies by nutritionist of the Western States, Hawaii, several Department agencies and State Departments of Health revealed that intake of protein is adequate but consumption of milk, eggs, fresh fruits and vegetables should be increased. Nutrients such as ascorbic acid, iron, calcium ~~and~~ thiamine are low or marginal for an appreciable number of the people studied, whether California men and women, Utah and Wyoming school children, or young women in Washington were the subjects.

Because the pinto bean constitutes the chief source of protein in the diets of the people of the Southwest, study of the amino acid composition has created an interest to determine if essential acids are present for proper utilization of the protein.

#### PENALTY MAIL

The Hatch Act of 1887, as amended (7 U.S.C. 361f, Supp. V), provides for the mailing under penalty indicia by agricultural experiment stations of bulletins, reports, periodicals, reprints of articles, and other publications, including lists of publications necessary for the dissemination of results of research. Mailings include not only those to individual farmers upon request but also to newspapers, libraries, other experiment stations, and organizations interested in results of research and dissemination of such results.

Under the terms of Public Law 705, approved July 14, 1956, the Department paid to the Post Office Department \$250,000 to cover postage on third and fourth class mail sent under the penalty privilege by the State agricultural experiment stations during fiscal year 1958. This payment covered the procurement of 3,099,949 envelopes, wrappers, labels, and tags by the experiment stations in the 48 States, Hawaii, Alaska, and Puerto Rico. Approximately the same volume of mail is anticipated in fiscal years 1959 and 1960.

(c) Diseases of Animals and Poultry

Appropriation Act, 1959, and base for  
 1960 (Transfer from CCC funds) ..... a/ \$1,000,000  
 Budget Estimate, 1960 ..... - -  
 Decrease (in transfers, due to proposed funding  
 by direct appropriation in 1960) ..... -1,000,000

a/ This amount is before pay act costs authorized by P. L. 85-462,  
 approved June 20, 1958. Such pay act costs for 1959 are estimated  
 at \$77,000.

PROJECT STATEMENT

Project	1953	1959 (estimated)	1960 (estimated)
Eradication of vesicular exanthema of swine .....	\$1,258,044:	\$1,077,000(1):	- -
Total available or estimate .....	1,258,044:	1,077,000	- -
Unobligated balance carried forward .....	429,625:	- -	:
Transfers from Commodity Credit Corporation .....	-1,243,408:	-970,375	:
Reappropriation of prior year balances ...	-44,261:	-29,625	:
Proposed increase of authorization due to pay increases .....	- -	-77,000	:
Appropriation or estimate .....	- -	- -	:

DECREASE IN AUTHORIZED TRANSFERS

(1) Decrease of \$1,077,000 due to deletion of the limitation on transfers from other funds for eradication of vesicular exanthema of swine. In fiscal year 1960 it is proposed to finance the activities connected with the eradication of vesicular exanthema of swine by a direct appropriation to "Salaries and expenses, Agricultural Research Service, plant and animal disease and pest control." (An amount of \$600,000 has been included in that appropriation estimate for this purpose, which represents a decrease of \$477,000 below the obligations estimated for 1959.)

CHANGE IN LANGUAGE

The estimates include a proposed change in the language of this item as follows (deleted matter enclosed in brackets):

Eradication activities: For expenses necessary in the arrest and eradication of foot-and-mouth disease, \* \* \* the Secretary may transfer from other appropriations or funds available to the bureaus, corporations, or agencies of the Department such sums as he may deem necessary, but not to exceed \$1,000,000 for eradication of vesicular exanthema of swine, to be available only in an emergency which threatens the livestock or poultry industry of the country, \* \* \*

This change in language proposes to delete the provision relating to the transfer of funds to finance eradication of vesicular exanthema of swine. In view of the progress which has been made in eradication of this disease, the 1960 Budget Estimate proposes a direct appropriation for this program under "Salaries and Expenses, Agricultural Research Service," Plant and Animal Disease and Pest Control. Therefore, it will not be necessary to finance the vesicular exanthema program from the item "Disease of Animals and Poultry" in 1960. The remaining language under this appropriation continues to be needed to finance any emergencies which may arise due to the existence of diseases which the Secretary may determine threaten the livestock or poultry industry.



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STATUS OF PROGRAM

Eradication of vesicular exanthema of swine: The results attained under this program are discussed in the Status of Program for "Salaries and Expenses, Agricultural Research Service, animal disease and pest control," under the item, "Diagnosis, control, and eradication of special diseases."

Foot-and-Mouth Disease Eradication: There have been no known cases of foot-and-mouth disease in Mexico since it was declared free of the disease on December 31, 1954. The operations of the Mexican-United States Commission for the Prevention of Foot-and-Mouth Disease have been greatly reduced and are limited chiefly to field and laboratory investigations of suspected cases of foot-and-mouth disease.

The following table shows the status of funds available to the Mexican-United States Commission as of September 30, 1958:

Statement of Mexican-United States Commission for  
the Prevention of Foot-and-Mouth Disease a/  
As of September 30, 1958

	<u>Pesos</u>	<u>Pesos</u>
Payments to the Commission:		
By the United States .....	34,995,964 <u>b/</u>	
By Mexico .....	2,740,920 <u>c/</u>	37,736,884
Income from sale of expendable property to be credited to United States and Mexican Section accounts .....		86,027
		<u>37,822,911</u>
Less expenses of Commission:		
Cumulative through June 30, 1958 .....	37,164,666	
From July 1, 1958 to September 30, 1958 .....	56,029	37,220,695
Balance available as of September 30, 1958 .....		<u><u>602,216</u></u>
The balance as of September 30, 1958 consists of:		
Cash (less Mexican withholding tax and employees' bond deposits, and income and expenses on sale of liquidation property) .....		285,993
Cash account of United States Section of Joint Commission -- proceeds of sale of canning and rendering plant 750,000 pesos, and income from sale of surplus property 654,164 pesos, available for future payments by the United States to the Joint Commission .....		100,864 <u>d/</u>
Receivables .....		1,010
Equipment .....		214,349
		<u><u>602,216</u></u>

a/ Because of variations in the rate of exchange this statement is made in pesos.

b/ Includes 175,443 pesos contributed from proceeds of sales of equipment owned by the Eradication Commission; excludes expendable property carried on the Commission's books at a value of 132,104 pesos.

c/ Includes 20,458 pesos contributed from proceeds of sales of equipment owned by the Eradication Commission. This has also been reduced by 44,886 pesos income from sale of surplus property of the Prevention Commission returned to the Mexican Government.

d/ Represents 1,303,300 pesos reduction due to application of funds by the United States Section to Commission expenses.



(d) Animal Disease Laboratory Facilities

PROJECT STATEMENT

	1958	1959 (estimated)	1960 (estimated)
Facilities for animal disease research and control .....	\$113,090:	\$14,683,472:	\$968,000
Unobligated balance brought forward .....	-15,764,562:	-15,651,472:	-968,000
Unobligated balance carried forward .....	15,651,472:	968,000:	- -
Total Pay Act costs (P.L. 85-462) ..	[2,892]:	[1,900]:	[1,900]
Total appropriation or estimate ....	- -	- -	- -

STATUS OF PROGRAM

The Supplemental Appropriation Act, 1957 provided \$16,250,000 for construction of animal disease research facilities. This was in addition to the unobligated balance of \$221,079 available from the Supplemental Appropriation Act, 1956, which provided \$250,000 for initial surveys, plans, and specifications.

The National Animal Disease Laboratory will be situated on a 318-acre tract of donated land near Iowa State College, Ames, Iowa.

On August 1, 1958 a construction contract was awarded to Henry C. Beck Builders, Inc., Dallas, Texas in the amount of \$14,331,000. An additional contract award also was made to Chenoweth-Kern Elevator Service, Des Moines, Iowa for elevator work in the amount of \$20,786. Contracts total \$14,351,786.

Actual construction on the laboratory was started on August 11, 1958. It is anticipated that this facility will be completed late in 1960.



(e) Research Facilities

PROJECT STATEMENT

Project	1958	1959 (estimated)	1960 (estimated)
Facilities for research on foot-and-mouth and other diseases of animals .....	\$128,963	\$148,127	- -
Unobligated balance brought forward .....	-277,090	-148,127	- -
Unobligated balance carried forward .....	148,127	- -	- -
Total appropriation or estimate ...	- -	- -	- -

STATUS OF PROGRAM

The Urgent Deficiency Appropriation Act, 1952 provided \$10,000,000 for the establishment of facilities for research on foot-and-mouth and other animal diseases. This was in addition to the unobligated balance of \$456,823 available from the Second Deficiency Appropriation Act, 1949 which provided \$500,000 for plans and specifications.

The main laboratory facilities located at Plum Island, New York were completed early in calendar year 1957 and are in operation. The remaining building to be constructed with these funds is the large animal holding facility. The lowest acceptable bid received for it late in fiscal year 1958 exceeded available funds. Plans and specifications were modified, new bids were invited and received, and a contract was awarded on December 19, 1958. It is anticipated that remaining funds of \$148,127 will be required for this construction. The facilities are expected to be completed in fiscal year 1959.

(f) Alterations and Improvements, Animal Quarantine  
Station, Clifton, New Jersey

Appropriation, 1959 and base for 1960 .....	\$30,000
Budget Estimate, 1960 .....	- -
Decrease (due to elimination of non-recurring item) .....	<u>-30,000</u>

PROJECT STATEMENT

Project	1958	1959 (estimated)	1960 (estimated)
Alterations and improvements .....	- -	\$30,000:	- -
Total authorized appropriation .....	- -	\$30,000:	- -

STATUS OF PROGRAM

The act of August 20, 1958 (72 Stat. 680) authorized the Department to convey to the city of Clifton, New Jersey, about 7 acres of land belonging to the United States animal quarantine station located there. Conveyance is conditional upon payment of 75% of the appraised fair market value and \$30,000. The latter amount is to be deposited in a special account for making alterations and improvements to the buildings and facilities on the remaining land at the station to compensate for facilities that are on the land being conveyed to the city of Clifton. The payment representing 75% of the appraised fair market value of the property will be deposited into miscellaneous receipts of the government.

(g) Working Capital Fund, Agricultural Research Center

This working capital fund is a continuing operating fund established by the 1951 Agricultural Appropriation Act by an appropriation of \$300,000 to finance the operating costs of certain centralized services and facilities at the Agricultural Research Center pending receipt of reimbursements for such costs from the agencies provided with the services. The integrity of the original appropriation is maintained from year to year by means of these reimbursements.

Statements reflecting the assets and liabilities, and income and expenses, of the working capital fund as of June 30, 1958, as well as estimates for 1959 and 1960, are included in the 1960 Budget.



STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS AND OTHER FUNDS

(Includes only those amounts which, by November 30, 1958, were actually received or programmed for 1959 or 1960. Since work for other agencies is performed on a service basis, at the request of those agencies and for their benefit, it is not practicable to estimate in advance the amounts to be received in most cases.)

Item	: Obligations, 1958	: Estimated Obligations, 1959	: Estimated Obligations, 1960
Allotment from:	:	:	:
Watershed Protection, Soil Conservation Service:	:	:	:
1. Investigations and planning .....	\$17,962:	\$30,000:	\$24,600
2. Works of improvement .....	68,792:	70,136:	75,536
3. Surveys and investigations of water resources programs .....	158,545:	201,464:	194,464
Total, Soil Conservation Service	245,299:	301,600:	294,600
Allocations (Advances from other Agencies):	:	:	:
International Cooperation Administration:	:	:	:
For training, consultation and technical assistance activities ...	734,858:	845,445:	- -
Office of Civil and Defense Mobilization - For nationwide radiological defense training of agricultural employees .....	- -	- -	140,000
Department of the Army:	:	:	:
Chemical, biological and engineering investigations .....	2,732:	- -	- -
Research on cereal rust epidemiology	5,159:	- -	- -
Total, Department of the Army .....	7,891:	- -	- -
Department of State:	:	:	:
Plant quarantine inspection services, Australia and New Zealand .....	5,250:	5,250:	- -
Agricultural Trade Development and Assistance Act of 1954 (Public Law 480) -- Allocation of foreign currencies for:	:	:	:
Utilization research under Section 104(a) .....	371,484:	6,628,516:	10,000,000
Research activities under Section 104(k) .....	- -	a/ 3,900,000:	- -
Total, Public Law 480 .....	371,484:	10,528,516:	10,000,000
Total, Allocations .....	1,119,483:	11,379,211:	10,140,000
Trust Funds:	:	:	:
Expenses and refunds, inspection and grading of farm products:	:	:	:
1. Inspection and certification of animal foods and inedible agricultural products .....	89,109:	87,600:	87,600

(Continued on next page)

Item	Obligations, 1958	Estimated Obligations, 1959	Estimated Obligations, 1960
<u>Trust Funds: - Cont'd.</u>			
<u>Expenses and refunds, inspection and</u>			
<u>grading of farm products:- Cont'd.</u>			
2. Identification service for meat and:			
other products .....	41,189:	41,500:	41,500
3. Contract specification work on meat:			
and meat food products .....	187,835:	200,568:	200,568
<u>Expenses, feed and attendants for</u>			
<u>animals in quarantine .....</u>	15,306:	18,358:	15,000
<u>Miscellaneous contributed funds .....</u>	249,286:	308,326:	258,636
<u>Prior year advances returned .....</u>	8,006:	4,829:	- -
<u>Total, Trust Funds .....</u>	<u>590,731:</u>	<u>661,181:</u>	<u>603,304</u>
<u>Obligations under Reimbursements from</u>			
<u>Governmental and Other Sources:</u>			
Research .....	908,417:	949,800:	949,800
Plant and animal disease and pest			
control .....	708,733:	706,700:	376,700
Meat inspection .....	6,149,084:	6,821,000:	6,821,000
Miscellaneous services to other			
accounts .....	156,845:	147,400:	147,400
<u>Total, Obligations under reimburse-</u>			
<u>ments .....</u>	<u>7,923,079:</u>	<u>8,624,900:</u>	<u>8,294,900</u>
<u>TOTAL, OBLIGATIONS UNDER ALLOTMENTS AND</u>			
<u>OTHER FUNDS .....</u>	<u>9,878,592:</u>	<u>20,966,892:</u>	<u>19,332,804</u>

a/ Represents estimated obligations for farm, forestry, and marketing research abroad from the appropriation to the President provided in the Supplemental Appropriation Act, 1959, for purchase of foreign currencies. Forestry and marketing research projects are developed and reviewed with the assistance of the Forest Service and the Agricultural Marketing Service, respectively.

## PASSENGER MOTOR VEHICLES

The 1960 Budget estimates propose the purchase of two additional passenger motor vehicles and the replacement of 244 such vehicles.

### Additional Vehicles

One additional passenger motor vehicle is needed for use at the Northern Utilization Research and Development Laboratory, Peoria, Illinois. A station wagon is needed to accommodate official travelers with their luggage where several employees are making a trip together, such as for travel to industrial contacts in the area. The destinations are frequently at distances up to 400 or more miles from Peoria, and present travel by plane or train is costly in time and money because of unsatisfactory transportation schedules and connections. Such a vehicle is also needed to provide space for carrying samples, supplies, and materials frequently too bulky for a passenger car, but not warranting the use of a truck.

One additional bus is needed for the transportation of employees at the Plum Island, New York Animal Disease Laboratory. Employees live on Long Island, and their transportation from the ferry landing on Plum Island to and from the laboratory buildings, a distance of about a mile, is on government time. The 5 buses now available for such transportation are inadequate to carry the employees arriving on the ferry, even though the buses are filled to standing-room capacity. This means that there is a delay of about 30 minutes a day for some 20 to 50 employees. The acquisition of an additional bus is needed to avoid this waste of employee time.

Present passenger vehicles are needed for current research, control and regulatory programs. To require scientific personnel to use their own cars which are needed for family use, or to drive trucks over long distances would create difficult problems.

### Replacements

All passenger vehicles to be replaced will either have mileage of more than 60,000, or be 6 or more years old. A detailed justification of the proposed replacements follows:

Research: Replacements would be made of 63 of the 415 passenger motor vehicles operated at field stations engaged in research. These vehicles are used in travel where no public transportation is available, such as to farms, ranches, cooperating experiment stations, etc., and in travel to remote sections of large stations. They are essential for collecting experimental data and materials necessary for facilitating research work.

Plant and Animal Disease and Pest Control: Replacement would be made of 181 of the 760 passenger motor vehicles, of which approximately 90% are operated in daily farm-to-farm travel in the control and eradication of tuberculosis, brucellosis, sheep scabies, cattle tick fever, hog cholera, and various plant pest control programs. About 10% are operated in travel on animal and plant quarantine work. They are frequently operated over very rough and rugged roads in all kinds of weather. In order to keep them in safe and dependable operating



operating condition, maintenance costs are frequently high. However, the control and eradication activities, testing and inspection cannot be carried on without them. In most cases, employees who own cars are reluctant to use them for even limited periods because of the hard usage to which they are subjected in this work. The replacements recommended will make it possible for those cars which are reaching inoperable condition to be replaced.

#### Age and Mileage Data

The widely diversified research and regulatory activities and the varying nature of the areas in which cars are operated make it impractical to establish standards for car utilization on a mileage basis or on the basis of number of employees. Cars are a necessity for carrying workers expeditiously to the scattered sites of testing, inspection and observation work.

Age and mileage data for passenger carrying vehicles on hand as of June 30, 1958:

<u>Age-Year</u> <u>Model</u>	<u>Age Data</u>		<u>Lifetime</u> <u>Mileage</u> (thousands)	<u>Mileage Data</u>	
	<u>Number of</u> <u>Vehicles</u>	<u>Percent</u> <u>of Total</u>		<u>Number of</u> <u>Vehicles</u>	<u>Percent</u> <u>of Total</u>
1951 or older	94	8	Over 100	13	1
1952	31	3	80-100	38	3
1953	79	6	60-80	198	16
1954	32	3	40-60	264	22
1955	198	16	20-40	331	27
1956	277	23	Under 20	372	31
1957	329	27			
1958	<u>176</u>	<u>14</u>			
Totals	1,216 *	100		1,216	100

\* Excludes 14 vehicles used in foreign countries.

#### AIRCRAFT

#### Replacements

Authority is requested for purchase of two small replacement airplanes as follows:

One is needed for replacement of a N-3-N Naval biplane received from surplus and over 10 years old. This plane is used at Forest Grove, Oregon, for research on methods and equipment for the more effective aerial spraying and dusting of crops, especially peas, potatoes, and other truck crops. This plane needs recovering and a new motor. Its replacement with a new small plane, especially adapted for the work, would greatly facilitate the research work.

One is needed for the replacement of a Cessna 180, purchased in 1953, used for plant pest control spraying and dusting activities. The new plane would be a four-place observation plane designed specifically for agricultural work and equipped for spraying and dusting operations. It would be safer to operate and much more efficient for plant pest control work.

## EXTENSION SERVICE

### Purpose Statement

Cooperative agricultural extension work was established by the Act of May 8, 1914, as amended by the Act of June 26, 1953, (7 U.S.C. 341-348), and the Act of August 11, 1955, (7 U.S.C. 347a). The legislation authorizes the Department of Agriculture to give, through the Land-Grant Colleges, instruction and practical demonstrations in agriculture and home economics and related subjects and to encourage the application of such information by means of demonstrations, publications, and otherwise to persons not attending or resident in the colleges. Extension educational work is also authorized under the Agricultural Marketing Act of 1946 (7 U.S.C. 1621-1627).

Cooperative agricultural extension work is carried on by incorporating research results, technological advancements, and situation and program facts of the Department of Agriculture and the agricultural colleges and experiment stations into a national educational program.

State and county extension work is financed from Federal, State, county and local sources. These funds are used within the States for the employment of county agents, home demonstration agents, 4-H Club agents, State specialists and others who conduct the joint educational programs adapted to local problems and conditions.

The Federal Extension Service, as a partner in the cooperative extension effort, is responsible for administering Federal laws authorizing extension work and for coordinating the work among the States through cooperation with committees of State Directors and other means. The Administrator of this Service is also responsible for the coordination of all of the educational work of the Department.

On November 30, 1958, there were approximately 15,000 extension field agents and 246 Federal employees, 237 of whom were headquartered in Washington.

	Estimated Available, <u>1959</u>	Budget Estimates, <u>1960</u>
Appropriated funds:		
Payments to States, Hawaii, and Puerto Rico	\$53,715,000	\$53,715,000
Retirement costs for extension agents	5,479,375	5,674,375
Penalty mail	2,491,307	2,491,307
Federal Extension Service	2,258,795	2,258,795
Total, appropriated funds	<u>63,944,477</u>	<u>64,139,477</u>





Cooperative Extension Work, Payments and Expenses

	<u>Payments to States, Hawaii, and Puerto Rico</u>	<u>Retirement Costs for Extension Agents</u>	<u>Penalty Mail</u>	<u>Federal Extension Service</u>	<u>Total</u>
Appropriation Act, 1959 .....	\$53,715,000	\$5,479,375	\$1,868,480	\$2,096,540	\$63,159,395
Proposed supple- mental, 1959, for pay act costs .	- -	- -	- -	162,255	162,255
Proposed supple- mental, 1959, for postal rate in- creases .....	- -	- -	a/622,827	- -	622,827
Base for 1960 .....	53,715,000	5,479,375	2,491,307	2,258,795	63,944,477
Budget Estimate, 1960 .....	53,715,000	5,674,375	2,491,307	2,258,795	64,139,477
Increase .....	- -	+195,000	- -	- -	+195,000

a/ This appropriation provides for payment to the Post Office Department for the cost of penalty mailings of extension agents and State extension directors. The cost of such mailings was increased by approximately one-third, effective in the fiscal year 1959, by the general increase in postal rates provided by Public Law 85-426. To provide for the necessary increase in the 1959 appropriation, the 1960 Budget reflects an anticipated supplemental appropriation of \$622,827. A full justification of the increased requirements will be provided at the time the supplemental estimate is submitted. For comparability with the 1960 estimate, the additional amount needed in 1959 has been included here in the base for 1960.

INCREASE, 1960

Retirement costs for Extension Agents:

To provide for employer's share of Federal contributions to the retirement fund for cooperative extension agents pursuant to Public Law 854.. +195,000

PROJECT STATEMENT

<u>Project</u>	<u>1958</u>	<u>1959 (estimated)</u>	<u>Increase</u>	<u>1960 (estimated)</u>
1. <u>Payments to States, Hawaii, and Puerto Rico:</u>				
a. <u>Payments for cooperative agricultural extension work under the Smith-Lever Act ..</u>	\$48,694,686	\$52,220,000	- -	\$52,220,000
b. <u>Payments and contracts under the Agricultural Marketing Act .....</u>	1,447,776	1,495,000	- -	1,495,000
2. <u>Retirement costs for ex- tension agents .....</u>	5,082,101	5,479,375	+\$195,000(1)	5,674,375
3. <u>Penalty mail (for extension agents and State extension directors) .....</u>	2,164,000	2,491,307	- -	2,491,307
4. <u>Federal Extension Service ...</u>	2,157,323	2,258,795	- -	2,258,795
Unobligated balance .....	689,654	- -	- -	- -

(Continued on next page)

Project	1958	1959 (estimated)	Increase	1960 (estimated)
Total pay act costs for Federal:				
Extension Service employees				
(P.L. 85-462) .....	[76,732]:	[174,039]:	- -	[174,039]
Total available or estimate ..	60,235,540:	63,944,477:	+195,000	64,139,477
Proposed supplemental due to				
pay increases .....	- -	-162,255:		
Proposed supplemental due to				
postal rate increases .....	- -	-622,827:		
Total appropriation or estimate:	60,235,540:	63,159,395:		

#### INCREASE

(1) An increase of \$195,000 for Federal contribution to the retirement fund for cooperative extension agents pursuant to Public Law 854.

Cooperative extension agents are joint employees of the United States Department of Agriculture and the cooperating land-grant institutions. They hold appointments under Civil Service Commission Regulation A-6, III(a)(1). Such appointments place them under the provisions of the United States Civil Service Retirement Act, with employee contributions and benefits based on total salary received from the cooperating partners. The employer's contribution to the Federal retirement fund, to match contributions of these agents, is provided by Federal appropriation to the Federal Extension Service.

Based on anticipated salary adjustments during fiscal year 1959 reflected in estimates obtained from the States, the 1959 appropriation of \$5,479,375 will be required for the employer's matching retirement costs for fiscal year 1959.

It is estimated that funds for extension work contributed by the States and counties will increase by \$4,000,000 in 1960, and that 75% (or \$3,000,000) of this increase will be used for salaries of personnel subject to the Retirement Act. Applying the 6.5% employer's retirement contribution to this increase in salary payments results in a Federal contribution requirement of \$195,000. This together with currently available funds for this purpose will total \$5,674,375, the amount necessary to cover the employer's matching retirement costs for 1960.

#### CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (deleted matter enclosed in brackets):

- 1 Payments to States, Hawaii, [Alaska,] and Puerto Rico: For payments for cooperative agricultural extension work under the Smith-Lever Act, as amended by the Act of June 26, 1953 (7 U.S.C. 341-348), and the Act of August 11, 1955 (7 U.S.C. 347a), \$52,220,000; and payments and contracts for such work under section 204 (b)-205 of the Agricultural Marketing Act of 1946 (7 U.S.C. 1623-1624), \$1,495,000; in all, \$53,715,000: Provided, That funds hereby appropriated pursuant to section 3 (c) of the Act of June 26, 1953, shall not be paid to any State,
- 2 Hawaii, [Alaska,] or Puerto Rico prior to availability of an equal sum from non-Federal sources for expenditure during the current fiscal year.

The first and second changes in language delete the word "Alaska", since it has now become a State. These changes will not affect in any way the amount of the payments to Alaska from this appropriation.

#### PAYMENTS TO STATES, HAWAII AND PUERTO RICO

Federal funds available for fiscal year 1959 for cooperative agricultural extension work within the States, Hawaii, and Puerto Rico under the Smith-Lever Act, as amended (\$52,220,000), and for carrying out the provisions of the Agricultural Marketing Act (\$1,495,000) total \$53,715,000.

Payments to the States, Hawaii and Puerto Rico are made directly to designated officers and the funds are disbursed by them in accordance with budgets and programs of work submitted by the State directors of extension and approved by the Administrator of the Federal Extension Service on behalf of the Secretary of Agriculture. As reflected on Table II, at present slightly less than 40% of the cost of extension work is being financed from Federal sources and more than 60% from State and local sources. The funds are used by the States for the employment of extension workers to carry on cooperative agricultural extension work. Paid extension workers are being assisted by a network of voluntary neighborhood leaders who cooperate in carrying out extension programs.

The use of these funds is indicated in greater detail in the following tables. Table I reflects estimated allotments to the States, Hawaii and Puerto Rico on the basis of rural and farm population. Table II indicates the sources of funds allotted for cooperative extension work in the States, Hawaii and Puerto Rico for 1959, including allotments under the Agricultural Marketing Act. Table III shows estimated direct payments to and contracts with States and Territories for 1960, indicating those which require offset from State and local funds, those where such offset is not required, and the basis of allotment. Table IV indicates the various classes of field agents employed with extension funds.





EXTENSION SERVICE APPROPRIATIONS FOR THE  
STATES, HAWAII AND PUERTO RICO

Table I.

	:	INCREASES OR DECREASES	:	TOTAL PROPOSED FOR
	1959	1960		1960
Payments to States based on rural and farm population Smith-Lever Act, Sec. 3(b) & 3(c)2:				
Alabama	\$ 1,851,955	-		\$ 1,851,955
Alaska	76,288	-		76,288
Arizona	248,962	-		248,962
Arkansas	1,511,604	-		1,511,604
California	1,298,295	-		1,298,295
Colorado	465,504	-		465,504
Connecticut	267,098	-		267,098
Delaware	127,332	-		127,332
Florida	608,229	-		608,229
Georgia	1,934,603	-		1,934,603
Hawaii	244,359	-		244,359
Idaho	352,210	-		352,210
Illinois	1,573,383	-		1,573,383
Indiana	1,308,503	-		1,308,503
Iowa	1,414,934	-		1,414,934
Kansas	950,061	-		950,061
Kentucky	1,826,811	-		1,826,811
Louisiana	1,206,636	-		1,206,636
Maine	344,712	-		344,712
Maryland	486,084	-		486,084
Massachusetts	378,637	-		378,637
Michigan	1,434,798	-		1,434,798
Minnesota	1,354,690	-		1,354,690
Mississippi	1,906,248	-		1,906,248
Missouri	1,601,279	-		1,601,279
Montana	348,623	-		348,623
Nebraska	796,314	-		796,314
Nevada	96,199	-		96,199
New Hampshire	180,613	-		180,613
New Jersey	373,690	-		373,690
New Mexico	318,786	-		318,786
New York	1,358,175	-		1,358,175
North Carolina	2,485,962	-		2,485,962
North Dakota	543,683	-		543,683
Ohio	1,785,831	-		1,785,831
Oklahoma	1,278,842	-		1,278,842
Oregon	506,953	-		506,953
Pennsylvania	1,781,173	-		1,781,173
Puerto Rico	1,577,470	-		1,577,470
Rhode Island	98,853	-		98,853
South Carolina	1,337,916	-		1,337,916
South Dakota	544,492	-		544,492
Tennessee	1,848,794	-		1,848,794
Texas	2,955,187	-		2,955,187
Utah	235,891	-		235,891
Vermont	226,227	-		226,227
Virginia	1,505,085	-		1,505,085
Washington	629,872	-		629,872
West Virginia	932,821	-		932,821
Wisconsin	1,349,880	-		1,349,880
Wyoming	182,144	-		182,144
Subtotal	50,052,691	-		50,052,691
Special need funds Sec. 3(b) and 3(c)1 of Smith-Lever Act				
	1,277,309	-		1,277,309
Smith-Lever Act, Sec. 8 funds				
	890,000	-		890,000
Agricultural Marketing Act funds (including contracts)				
	1,495,000	-		1,495,000
Total Payments and Contracts				
	53,715,000	-		53,715,000
Retirement Costs: Federal share of retire- ment costs for cooperative extension employees				
	5,479,375	\$195,000		5,674,375
Penalty Mail: Reimbursement to Post Office for penalty mail for Extension Service				
	a/ 2,491,307	-		2,491,307
Grand Total	\$61,685,682	\$195,000		\$61,880,682

M0-368 (12-58)

a/ Includes anticipated supplemental appropriation of \$622,827 due to postal rate increases.





TABLE II.

## U. S. DEPARTMENT OF AGRICULTURE

## FEDERAL EXTENSION SERVICE

SOURCES OF FUNDS AVAILABLE FOR COOPERATIVE EXTENSION WORK IN STATES, HAWAII, AND PUERTO RICO  
FOR THE FISCAL YEAR ENDING JUNE 30, 1959

STATES	GRAND TOTAL	TOTAL FEDERAL FUNDS	TOTAL WITHIN THE STATES	FUNDS FROM FEDERAL SOURCES		FUND FROM STATE AND COLLEGE	WITHIN COUNTY	THE	STATES
				SMITH-LEVER ACT AS AMENDED	AGRICULTURAL MARKETING ACT* (TITLE II)				
Alabama	\$ 3,723,870	\$ 1,897,575	\$ 1,826,295	\$ 1,872,575	\$ 25,000	\$ 1,100,000	\$ 726,295	\$ -	-
Alaska	215,993	107,993	108,000	105,493	2,500	108,000	-	-	-
Arizona	871,112	327,962	543,150	320,962	7,000	479,320	63,830	-	-
Arkansas	3,203,401	1,581,081	1,622,320	1,563,081	18,000	1,165,473	396,197	60,650	60,650
California	6,646,393	1,372,295	5,274,098	1,325,295	47,000	3,869,784	1,338,514	65,800	65,800
Colorado	1,548,866	543,464	1,005,402	533,564	9,900	518,322	487,080	-	-
Connecticut	884,082	275,358	608,724	267,098	8,260	359,265	236,747	12,712	12,712
Delaware	334,925	160,182	174,743	136,182	24,000	153,035	1,600	20,108	20,108
Florida	2,530,224	621,624	1,908,600	614,624	7,000	1,109,517	799,083	-	-
Georgia	4,383,262	2,069,703	2,313,559	2,021,703	48,000	1,353,400	954,659	5,500	5,500
Hawaii	793,006	262,359	530,647	244,359	18,000	530,647	-	-	-
Idaho	1,226,087	399,844	826,243	394,210	5,634	499,701	297,492	29,050	29,050
Illinois	3,720,529	1,608,683	2,111,846	1,580,683	28,000	1,666,500	-	445,346	445,346
Indiana	3,612,724	1,363,768	2,248,956	1,323,768	40,000	1,022,090	1,132,476	94,390	94,390
Iowa	4,441,027	1,460,934	2,680,093	1,444,934	46,000	1,130,836	1,549,257	-	-
Kansas	3,782,111	1,034,561	2,747,550	989,561	45,000	709,628	1,977,597	60,325	60,325
Kentucky	3,465,441	1,934,505	1,530,936	1,884,505	50,000	928,891	600,000	2,045	2,045
Louisiana	3,692,707	1,307,604	2,385,103	1,265,104	42,500	2,069,691	304,777	10,635	10,635
Maine	822,190	376,572	445,618	358,572	18,000	312,040	133,578	-	-
Maryland	2,156,338	533,905	1,622,433	488,905	45,000	1,266,156	356,277	-	-
Massachusetts	1,615,093	444,637	1,200,456	378,637	36,000	772,122	-	-	-
Michigan	4,612,365	1,605,307	3,007,058	1,465,307	140,000	2,133,500	848,358	25,200	25,200
Minnesota	2,791,772	1,399,842	1,391,930	1,384,842	15,000	648,612	739,918	3,400	3,400
Mississippi	4,058,271	2,004,107	2,054,164	1,977,607	26,500	1,224,449	784,825	44,890	44,890
Missouri	3,677,232	1,762,698	1,914,534	1,695,598	67,100	1,085,000	681,982	147,552	147,552
Montana	1,393,673	435,146	958,527	425,146	10,000	518,117	440,410	-	-
Nebraska	2,090,447	847,402	1,243,045	834,902	12,500	733,015	510,000	-	-
Nevada	476,395	182,899	293,496	182,899	-	197,645	95,851	-	-
New Hampshire	590,762	189,140	401,622	180,613	8,527	251,928	145,294	4,400	4,400
New Jersey	1,743,512	391,190	1,352,322	373,690	17,500	743,884	604,742	3,696	3,696
New Mexico	1,182,623	457,006	725,617	433,246	23,760	535,617	190,000	-	-
New York	6,495,007	1,403,425	5,091,582	1,358,175	45,250	2,074,672	2,660,692	356,218	356,218
North Carolina	6,985,948	2,636,824	4,349,124	2,561,824	75,000	2,599,124	1,750,000	-	-
North Dakota	1,308,793	605,641	703,152	590,683	14,958	259,309	425,383	18,460	18,460
Ohio	3,602,394	1,840,401	1,761,993	1,808,401	32,000	906,561	804,228	51,204	51,204
Oklahoma	3,126,301	1,386,042	1,740,259	1,343,842	42,200	1,140,506	583,287	16,466	16,466
Oregon	2,890,424	612,685	2,277,739	568,685	44,000	1,767,688	510,051	-	-
Pennsylvania	3,817,187	1,803,114	2,014,073	1,788,114	15,000	1,464,073	550,000	-	-
Puerto Rico	2,568,750	1,593,470	975,280	1,593,470	-	975,280	-	-	-
Rhode Island	266,934	102,913	164,021	98,853	4,060	137,122	23,600	3,299	3,299
South Carolina	2,533,986	1,388,276	1,145,710	1,380,776	7,500	987,800	151,070	6,840	6,840
South Dakota	1,488,037	586,442	901,595	580,492	5,650	673,682	220,000	8,213	8,213
Tennessee	3,415,773	1,907,137	1,508,636	1,887,137	20,000	983,500	525,136	-	-
Texas	6,393,966	3,043,801	3,350,165	3,011,301	12,500	1,330,837	2,018,108	1,220	1,220
Utah	840,750	327,912	512,838	310,891	17,021	370,900	141,938	-	-
Vermont	725,070	251,507	473,563	238,227	13,280	363,963	109,600	-	-
Virginia	3,994,883	1,541,367	2,453,516	1,521,367	20,000	1,972,830	480,686	-	-
Washington	2,265,394	730,022	1,535,372	710,522	19,500	957,620	577,752	-	-
West Virginia	1,741,408	972,485	768,923	968,485	4,000	445,633	319,490	3,800	3,800
Wisconsin	3,600,742	1,424,980	2,175,762	1,387,880	37,100	963,553	1,212,209	-	-
Wyoming	873,336	284,094	589,242	279,794	4,300	423,148	166,094	-	-
Unallotted	173,416	-	-	173,416	-	-	-	-	-
AMA Contracts	170,000	170,000	-	-	170,000	-	-	-	-
GRAND TOTAL	\$ 135,264,902	\$ 53,745,000	\$ 81,549,902	\$ 52,220,000	\$ 1,495,000	\$ 49,650,198	\$ 30,398,285	\$ 1,501,419	-

\* Preliminary Distribution



Table III. Statement of direct payments to and contracts with States, Hawaii, and Puerto Rico, indicating those requiring offset by States and Territories, those not requiring such offset, and basis of distribution as estimated for 1960.

Item	Total Estimate 1960	Basis of Allotment	Amount paid without offset	Amount requiring offset
Payments to States, Hawaii, and Puerto Rico .....	\$52,220,000:			
Smith-Lever Act Section 3(b)		\$31,597,279-Frozen	\$14,513,808:	\$17,083,471
		by Sec. 3(b) of		
		Public Law 83		
		\$300,000-for Puerto:		300,000
		Rico; specified		
		by law		
Section 3(c) .....		\$19,432,721		19,432,721
		(\$9,327,706-Farm		
		pop.)		
		(\$9,327,706-Rural:		
		pop.)		
		(\$777,309-Special:		
		needs)		
Section 8 .....		\$890,000-Rural	890,000:	
		Development; on		
		basis of special		
		needs		
Payments and contracts under the Agricultural Marketing Act .....	1,495,000:	\$1,495,000-Basis of:	<u>1/</u> 100,000:	1,395,000
		approved projects:		
		and contracts		
Total, direct				
Federal payments ..	53,715,000:	53,715,000	15,503,808:	38,211,192

1/ Regional marketing contracts.



Table IV. Cooperative extension agents, by organization classes.

	: June 30,	: June 30,	: June 30,
	: 1956	: 1957	: 1958
<u>STATE WORKERS:</u>	:	:	:
Directors and administrative personnel .....	: 195:	: 195:	: 202
Specialists .....	: 2,338:	: 2,368:	: 2,528
Total, State staff .....	: 2,533:	: 2,563:	: 2,730
<u>COUNTY WORKERS:</u>	:	:	:
Supervisors .....	: 709:	: 746:	: 747
Agricultural agents (a) .....	: 6,658:	: 6,951:	: 7,064
Home Economics agents (a) .....	: 4,083:	: 4,053:	: 4,271
Total, county staff .....	: 11,450:	: 11,750:	: 12,082
GRAND TOTAL .....	: 13,983:	: 14,313:	: 14,812

(a) Includes Club agents

## STATUS OF PROGRAM

General: The Cooperative Extension Service conducts the educational program which links farmers, homemakers and market operators with the research facilities of the United States Department of Agriculture and the State agricultural colleges. Cooperative extension work in agriculture and home economics is out-of-school education, conducted by the Land-Grant Colleges in cooperation with the Department of Agriculture and county governments. The basic objective of extension work is to help people increase their managerial and technical skills and thereby improve their economic status, family and community life.

Extension personnel furnish farm people and other groups with information on research and farm program facts, and help them apply an ever-widening range of scientific knowledge in agriculture and home economics.

The Federal Extension Service administers the nationwide system of extension work through the Land-Grant Colleges and Universities under Federal laws governing this work. It coordinates the educational activities of the Department of Agriculture and provides national leadership to insure an up-to-date, progressive, highly productive and efficient educational program. This requires close liaison with research and action agencies of the Department. As coordinator of the educational work of the Department, the Federal Extension Service integrates such work into educational work of the States and counties, and works closely with other departments of Government and national, private and public organizations and groups, so that all national effort of significance is coordinated with extension work in each State and Territory.

Over Ten Million Families Assisted by Extension Workers: In 1957 extension workers assisted, with varying degrees of intensity, over 10,900,000 families in over 3,000 counties. This was a 6% increase over 1956. This is an average of approximately 1,000 families per county extension worker.

4-H Club membership reached an all-time high of approximately 2,200,000 members in about 90,600 clubs. Among those assisted were over 1,300,000 homemakers in organized groups, and over 5,500,000 homemakers not in organized groups. In addition, Extension aided several thousand cooperatives, food retailers, firms handling farm supplies, and county and community organizations of various types.

This workload has been handled by an average of slightly over three extension agents per county (both men and women). Aiding them were about 1.3 million unpaid local volunteer leaders, without whose assistance a program of this scope would not be possible.

In April 1958, a very significant report, "The Cooperative Extension Service Today," was released by the Extension Committee on Organization and Policy of the American Association of Land-Grant Colleges and State

Universities. It reflects one of the major results of approximately two years of intensive study and deliberation by the Committee, in an effort to insure that the resources which Extension has available are directed more effectively to the more important problems facing rural people today and to those likely to face them in the immediate future.

- I. Major Program Activities of the Extension Service: These are the areas of program emphasis constituting the core of a program of informal education of nation-wide significance. Extension is engaged in appraising its efforts in each of these areas in order to give as nearly adequate educational service as possible.
- A. Providing educational assistance to farm families in attaining efficiency in agricultural production.
  - B. Promoting efficiency in marketing distribution and utilization through educational programs.
  - C. Participating in the development and conduct of programs involving conservation development and use of natural resources.
  - D. Assisting farm families to improve the management of farm and home.
  - E. Providing appropriate assistance to farm families in the solution of family living problems.
  - F. Providing educational programs geared to youth development needs.
  - G. Contributing to the development of leadership ability.
  - H. Rendering appropriate educational assistance with community improvement programs benefiting both farm and non-farm residents.
  - I. Assisting farm people to effectively appraise the off-farm forces affecting their operations.

II. Selected Examples of Recent Extension Accomplishments:

A. Intensive Educational Programs Assist Farm Families:

The Farm and Home Development Program: Seventy-five percent of all the county extension offices in the United States reported doing some work in the more intensive approach known as the Farm and Home Development Program. In 1957 there were 64,325 families participating, 20,459 of whom started or developed certain practices on their farm for the first time. Of the total number which Extension has assisted, 21,536 are in the low-income family bracket, 11,606 are part-time farmers, 8,234 just started farming, and 12,739 of these have had little or no previous direct contact with the Extension Service.



Progress in Arkansas: A recent survey of 98 Arkansas Farm and Home Development families showed that they earned 6.2% more labor income per farm in 1956 than in 1955, while the average Arkansas farm family's net farm income declined 20.5%. In terms of dollars, the 6.2% increase represented \$168 per farm; the 20.5% reduction, \$551 per farm. Hence, the benefit of the Farm and Home Development Program to these 98 families approximated \$719. Their actual labor income was \$2,689 per farm. Assuming these 98 cases analyzed were typical of the Arkansas farm families participating in Farm and Home Development, the total benefit to the State in the one year approximated \$590,000.

Florida Activity: A Florida dairy farm family asked for Farm and Home Development assistance under the following circumstances. They owned 400 acres of poor land, 80 acres in woods and 320 acres of semi-cleared land. 18 acres of permanent pasture, and a 20-cow dairy barn in fair condition. Their dairy herd of 86 cows was bought with the farm. Of these 22 had Bang's disease. The yearly average production of the herd was 860 pounds of milk per day. They lost \$1,600 in four winter months. They had been buying all their feed. The family and agents discussed their six major problems and made plans deciding on eight short-time goals and five long-time goals. The winter of 1953 showed profits of \$3,480 or \$890 per month. Of ten practices decided upon, nine were attained in 2 1/2 years. In 1956, they put 320 of the 400 acres in pasture and field crops, 125 acres double-cropped in winter for grazing and 400 tons silage for winter. Average milk production from 38 milking cows was better than 7,500 pounds per cow a year. The herd now consists of 100 registered Guernsey cows and calves. This family started out with a debt of over \$24,000 and their assets now outreach their liabilities.

Added Income in South Carolina: A smaller owner in South Carolina, whose main source of income came from truck crops, small grain, and swine, has found that his forest has a definite place in the farm business. Farm plans developed by the owner with the aid of the county agent called for more grain-producing land to increase livestock and to make fuller use of family labor and farm equipment. The farm forest, containing an excellent stand of pine timber, provided funds for buying additional land and making other adjustments. To assure good management and best returns a yearly cutting program was put into effect. Four selective cuttings of about 10 acres of short-leaf pine each have returned \$8,750, which has paid for a 12-acre pond to irrigate truck crops, 40 acres of river bottom land, some farm machinery, and a new equipment shed.

Educational Work to Aid Farm Families in Disadvantaged Areas: Now in its third year, the program has been a long-range co-operative effort involving agencies of Federal, State, and local governments to help underemployed farm people increase their income

and improve the economy of their areas. It is now carried on in 63 pilot counties and 9 areas in 30 States and Puerto Rico. Exhibit "A" shows the areas where this program is being conducted.

Teamwork is Helping: One of the most productive achievements from an organization standpoint has been the development of teamwork among agencies and groups to get the job under way. This has made possible a broad, concerted attack on basic causes of local problems through mobilizing local leaders, private organizations, industry, civic and farm organizations, religious and educational groups, and Government agencies into a cooperative effort to develop the economy in rural areas.

At the State and county level, Cooperative Extension Services have been active in supplying Rural Development committees with those administrative services that are needed to back up the work of planning groups. In the pilot counties Extension Service workers are not only working with the Rural Development committees in helping them to organize and get local participation and other services, but they also render essential on-the-farm assistance to farm families.

Outside Opportunities Considered: In the past, most of the effort of extension workers has been to improve the economic position of low-income rural areas by improving agricultural practices. Due to limited acreage of good farm land, insufficient capital and poor markets, the results have not always been encouraging. Improved production techniques have been responsible for some increase in income, but a careful analysis of various situations makes it plain that working in farming alone will not solve the problem. Local leaders, who are responsible for most of the program, have seen that they must look outside of farming for additional job opportunities and alternatives for underemployed workers if the community is to achieve a balanced economy.

Management Assistance Improves Farm Operation: Intensive on-the-farm assistance in three pilot counties in Missouri in 1957 reached 243 farm families. This included assistance in locating and purchasing more land by seven farmers; 16 families added more livestock; 18 farmers rented additional land; 50 farms tested soil for the first time; 12 purchased new farm machinery, while five made improvements to their homes. A food management class was conducted for 33 women, all from small farms.

New Enterprises Broaden Opportunity: In Anson County, North Carolina, a community of 135 rural families is undertaking new enterprises in crafts workshops for women, and in poultry and forestry. One local store handles the crafts, and sold \$90 worth the first week. In the same community 13 farmers took a course in growing, grading and storing sweetpotatoes. Sweetpotatoes that had been properly stored were bringing 100% more in January than had been offered at harvest time. In Bertie County, North Carolina, 700 farmers joined with businessmen in setting up a marketing corporation to handle vegetables produced as a new enterprise. Thirty-five new producers of milk in Watauga County, North Carolina, added \$350 to each of their incomes the first year, while 7,000 laying hens brought in \$10,000 new money on these and other small farms.



(EXHIBIT A)



## Rural Development Pilot Counties





Forestry is finding new supporters in many pilot counties. As an example, in Chilton County, Alabama, where three-fourths of the land is in forests, the County Committee helped establish wood-using industries and markets.

State vocational training departments are cooperating with Rural Development County Committees in providing additional funds for training adults and youth. In Kentucky, a special mobile unit was equipped to give training in plumbing, welding, and electrical work for men and boys, while women were provided training in stenography, nursing, and nutrition. Twenty-eight classes of six weeks duration enrolled 500 people in these courses.

Extension Cooperates with Community Development Programs: What happens in a community when suburbanization takes over? This is happening in hundreds of counties across the United States. Karns community in Knox County, Tennessee, decided to do something about it. Once a quiet farming community of perhaps 150 families, it has grown in a few years to a community of 480 families, or 1,700 people. One of the first steps was to organize a community council, made up of representatives of each of 22 different organizations. The council resolves program conflicts, helps plan cooperative projects, and acts as a clearing house for uniting the efforts of all the different organizations and families. In this particular community, improved pasture has been a major agricultural project and more extension effort has been placed in helping part-time farmers with rabbits, poultry flocks, beekeeping, orchard or berry patches, as well as with lawn care and landscaping. In 1956 and 1957, a water district was established, a medical clinic built, a community fair held, a farmers' exchange service established, night classes in vegetable gardening held, and various recreation activities organized.

Many extension projects are furthered through local community groups. About 900 communities in Tennessee are organized to carry on similar work and community development as an Extension program is found across all the Southern States, and today includes organized programs in over 4,000 communities.

B. Efficiency in Agricultural Production Promoted by Educational Programs: The Cooperative Extension Service, recognizing that efficiency in agricultural production is essential to national economic growth, assists producers in applying the results of research and advancing technology.

1. Farmers Learn How to Purchase Their Plant Food Requirements: Extension has had an intensive program to teach farmers how to purchase their plant food requirements by cost per unit, rather than price per ton. This usually calls for grades of higher analysis. The benefits can be seen from

the following figures on fertilizer use in the United States and Territories:

<u>Year</u>	<u>Total Tons of Fertilizer</u>	<u>Tons of Plant Food Purchased</u>	<u>Average Percent of Available Plant Food</u>
1934	5,706,896	1,043,661	18.2
1945	13,466,374	2,712,834	20.2
1954	22,773,499	5,995,558	26.4

Had farmers in 1954 applied the same quantity of plant food, but from fertilizers of 1934 analysis, they would have had to use nearly 33,000,000 tons instead of 22,773,499 tons. By changing to the higher analysis material, they were able to avoid the cost of processing, bagging, shipping and handling of 10,000,000 tons of practically worthless material. It is estimated this change has saved farmers \$75,000,000 annually.

2. Cotton Quality Improvement Program: The Extension Service program to improve cotton quality by proper harvesting and ginning has resulted in some remarkable improvements.

Harvesting: Training schools were held during the past 3 years for more than half of the Nation's 22,000 mechanical cotton picker operators. More than half the 25,000 operators and owners of mechanical cotton strippers were furnished information and assistance in defoliation, weed control, and stripper operation. It is conservatively estimated that half of the mechanically harvested cotton in 1957 was improved a minimum of \$5 per bale, or almost \$9,000,000 as a result of this extension educational effort.

Ginning: Extension-sponsored gin schools and instructional meetings were held throughout the Cotton Belt during the years 1954 through 1957 to improve quality of ginning through better machinery operation. More than 1,200 cotton gin operators attended in 1957, and the 4-year total of those instructed was more than 4,000. The reduction in gin damage from rough preparation (poor ginning) alone has resulted in a saving to farmers for each of the past 4-years of at least \$10 per bale on 6% of the crop. Better ginning added more than \$6,000,000 to farmers' income.

Extension efforts continue toward reduction in fiber damage due to overdrying and the use of excessive overhead cleaning machinery.

The use of moisture-testing machines in gins and on farms is increasing due to continued Extension efforts to demonstrate



the importance of moisture content to quality of cotton, both in the harvesting and ginning processes. Recent improvements in mechanical pickers may now be practically adapted to machines in the field for the purpose of gathering less leaf trash, stems, vines, and grass. Other devices on the farm and in the gin show promise of reducing labor costs, increasing efficiency and improving cotton's quality and appeal to the spinner. Extension will bring these improvements to the attention of picker owners throughout the Cotton Belt.

3. Pest Control Programs: Extension entomologists and county agents played a very important part in keeping the public informed about the Department's regulatory pest control programs and in molding public sentiment in favor of them. Guiding the public in a safe and effective use of about 3,000,000,000 pounds of pesticides continues to be an important educational job.

Extension actively cooperated in the Clean Grain Program, which helped provide more wholesome food and saved farmers millions of dollars by protecting their grain.

For every dollar spent on insect control in 1957, it is estimated that Colorado farmers realized a return of \$20. Their treating 231,000 acres of cereal crops for cutworms and about a million acres for grasshopper control, according to Extension's recommendations, was involved in the returns.

County Extension agents in Illinois reported that 657,267 acres of corn land was treated for soil insect control, returning a profit of three dollars per acre or almost \$2,000,000 to the farmers of the State.

4. Mechanical and Chemical Weed Control Together with Machine Harvesting Produces Results in Texas: The hoe bill is second only to harvesting as the most expensive item in cotton production. Strong emphasis was placed on mechanical and chemical weed control last year. Use of the rotary hoe is the key mechanical weed control practice. Spot-oiling Johnsongrass and post-emergence oiling were stressed. The Texas Extension Service reported the following savings from various demonstrations:

Mechanical and Chemical Weed Control:

Saving on the hoe bill for 44,798 rotary hoe-equipped tractors operated in 150 counties .....	\$15,167,000
Saving on the hoe bill for spot-oiling Johnsongrass demonstrations of 87,954 acres of cotton .....	439,800
Saving on the hoe bill in lateral-oiling demonstrations on 13,346 acres in 41 counties .....	66,700
Total value of mechanical and chemical weed control demonstration program in cotton in 1957 .....	\$15,673,500

Machine Harvesting:

Saving to producers from machine harvesting  
one-third of the 1957 crop, 1,200,000 bales,  
at \$25 per bale through the use of 1,587  
spindle pickers in 57 counties and 23,132  
stripper harvesters in 123 counties ..... \$30,000,000

Increased Yields:

Value of increased current 10-year average  
lint yield per acre of 62 pounds over the  
previous 10-year period ..... \$120,714,000

Total accumulative monetary value of research  
and educational efforts brought about by the  
7-Step Cotton Program in 1957, which is the  
twelfth year of a continuous program ..... \$166,387,500

5. Irrigation Program Conserves Water: Avocado growers in San Diego County, California, have realized a gross saving of about \$550,000 as a result of improvements in irrigation practices. Following irrigation schedules outlined for them by the farm advisor and the irrigation specialist, 3 growers changed to a 7-day interval instead of 14- to 21-day irrigation schedules. Their trees improved tremendously. Nearly 80% of the avocado growers in San Diego County have switched to the shorter interval irrigation program on the basis of these tests. In many cases they have saved up to 25% in water use, which amounts to about \$50 per acre.
6. Importance of Certified Seed to the Nation's Agriculture: This seed is produced under techniques encouraged by the colleges of agriculture and the Department of Agriculture. The object is to assure the farmers pure seed of the variety desired. Extension has played a prominent part in developing and popularizing seed certification. The following comparisons reflect the growing importance of the program: In the 5 years, 1946 - 1950, there was enough certified alfalfa seed for 4.3% of the acreage; in 1951 - 1955, there was enough for 29.8% of the acreage. The increase in cotton seed was from 26.3% to 42.1%. In Louisiana an educational program on merits of certified seed has resulted in an annual saving of \$120,000 to pepper growers. Use of certified sweetpotato seed, coupled with good cultural and management practices, has minimized losses from internal cork, which was so prevalent during the preceeding 3 to 5 years.
7. Control of Brucellosis: In 1947 the losses to farmers due to brucellosis amounted to \$92,000,000. In 1957 this loss was down to \$30,000,000. Much of this progress was accomplished by an extension educational program conducted in close cooperation with the Brucellosis Eradication Section of the Agricultural Research Service. In 25 years the percent of infection has dropped from 11% to less than 2%. In 1935 a total of 212,482



herds and 3,318,000 cattle were tested for brucellosis. By 1957 these totals had increased to 1,171,000 herds and 16,000,000 cattle.

In 1954, when the accelerated educational program started, there were 341 certified counties out of a total of 3,000. On January 1, 1958, a total of 914 counties had been certified with 690 other counties conducting an area eradication program.

8. Shift in Land Use: A study of 11 States extending from Texas and Oklahoma eastward for the 1926 to 1956 period shows a change in land use in the Cotton Belt from row crops to grass and timber. This has been a significant development.

Acreages  
(million acres)

<u>Crop</u>	<u>1926</u>	<u>1956</u>	<u>Change</u>
Cotton	44.0	16.0	-28.0
Corn	30.0	18.0	-12.0
Soybeans	1.0	4.3	+3.3
Peanuts	1.5	1.9	+0.4
Sorghum	3.0	10.0	+7.0
Tobacco	<u>1.5</u>	<u>1.2</u>	<u>-0.3</u>
Total	81.0	51.4	-29.6

This reduction continues. Extension fills an important role in acquainting farmers with the means of putting this land to use, principally in grass and timber; and suggesting the best practices in the planting and management of these crops. This help is particularly important in such areas where farmer experience with grass and timber management is limited. Recent Forest Service studies reflect a more rapid reforestation in this area than in any other part of the country.

9. Windbreaks Curb Wind Erosion and Increase Yield: Neighboring farmers in Wilkin County, Minnesota have increased crop yields by 60% or more by planting field windbreaks for crop protection. On one farm, a field that was non-productive a few years ago yielded 75 bushels of oats per acre, due to trees that held soil in place and helped prevent moisture loss from winds. On a nearby farm, corn yielded 80 bushels per acre where it was protected by the shelterbelt and yielded only 50 bushels farther away. The tree plants were established at the suggestion of the State extension foresters.



10. Tree Planting on Farms: Tree planting under the Soil Bank, Agricultural Conservation Program Service, and Clarke-McNary Section 4 programs, in cooperation with the Forest Service and State forestry agencies with extension foresters and county agents, has been highly significant. Millions of trees have been planted to replace low-producing croplands, to put idle lands to work, and to reforest cut-over lands.

C. Efficiency in Marketing, Distribution, and Utilization Promoted by Educational Programs: Paralleling efficiency in production is the necessity for developing the maximum practicable efficiency in the marketing, distribution, and utilization of agricultural products.

1. Poultry: Missouri, as one of the top 10 turkey-producing States in the Nation, felt the impact of the national record production of turkeys in 1957.

It became apparent quite early in the year that consumers would need to be informed of the availability and selection of turkeys during the summer months, since May brought approximately 40% more turkeys than the previous year, and would need encouragement on usage by suggestions on preparation and food value. Producers and handlers with small as well as large turkeys and those creating new turkey products, such as the turkey roll, turkey by the piece, frozen turkey, etc., were eager to present these to the public.

In April the Food Marketing office started giving applicable marketing information to radio and television stations, newspapers, large food handlers, and others reaching consumers directly, and continued to give this emphasis during May, June, July and August. According to poultry wholesalers and poultry retail buyers, the efforts of the food marketing personnel were a contributing factor to the largest summertime movement of turkeys in the St. Louis area. The fall movement of larger size turkeys was assisted in like manner. Taking a look at the year's movement of turkeys and the number now in storage in St. Louis, the industry feels the action taken this year by the Food Marketing Program greatly assisted in reducing holdings to 25% or less in December 1957 compared to December 1956.

2. Meat-Type Hogs: In North Carolina, because of interest in the meat-type hog program, several of the leading packers offered their facilities for holding cutting demonstrations to educate producers. Specialists of the Extension Service and the State Department of Agriculture assisted with the cutting demonstrations. Meat packers and plant managers were amazed at the actual cutting values of carcasses of different grades. This program has resulted in a rapid increase in the production of meat-type hogs.

3. Milk: In Missouri, information on bulk tanks, pipeline milkers, and full supply contracts has been pushed in the marketing program to help bring about a higher quality of products, more even production and full-supply contracts, to help increase the amount of milk sold as Class I milk and to eliminate confusion and cost by doing away with procurement by handlers. The Extension Service has encouraged the distribution of milk through vending machines in order that it may be available at all times the consumers desire it. Several years ago the Extension dairy marketing specialist participated in the making of a movie on milk vending machines in cooperation with the industry. Milk vending in Missouri is increasing, and  $1\frac{1}{2}\%$  of all Grade A production now goes through vending machines.

Vending Machines in Missouri

1954 .....	371
1955 .....	574
1956 .....	836
1957 .....	1058

This means approximately \$160,000 per year more money for Grade A producers because of increased milk used in Class I. During the past 4 years the increase has amounted to \$600,000.

4. Fruit: In Mississippi, for the second consecutive year, cantaloupes maintained a price through the entire season of \$2 to \$3 per bushel at Farmers Central Market. Each year for 7 years (before the Consumer Marketing Information Program) the market dropped to \$1 per bushel or less, some time during the marketing season. Credit is given to the orderly marketing of this product and the price producers received the past two seasons to the information given by the consumer marketing specialist to consumers in the Jackson area. Producers selling at the Farmers Market report that they had tripled their produce sales as a result of information given by the Consumer Marketing Program on TV, radio, and news releases in Jackson. The manager of Farmers Central Market and the Extension marketing leader report that the Consumer Marketing Information Program was directly responsible for adding at least \$145,000 to incomes of producers in the State of Mississippi in 1957.
5. Marketing Program Aids Retailers: In Delaware an independent retail food store operator with sales volume of \$100,000 yearly in his store was aided in



evaluating and improving his store layout by the extension specialist. Improved space allocation and better display methods were adopted. The sales increase was instantaneous with volume increasing sharply in all departments. Increases in produce volume ranging from 10 to 45% have been reported by at least 15 chain and independent firms in Delaware where extensive improvements in merchandising methods were made after an analysis by the extension specialist. Of greater importance, however, is that operating costs were cut sharply. on one such supermarket where backroom work simplification practices were instituted, sales climbed 35% with exactly the same labor input, and personnel considered their work easier with the added volume than it was before the changes were made and when the store was doing the smaller volume of sales.

6. Consumer Marketing Information Serves the Public: Poor quality sweet corn was being sold to consumers. An effective approach to the problem presented itself when one of the nearby growers decided to experiment with growing sweet corn. Being extremely cooperative, he followed recommended practices of the University of Missouri meticulously. The wholesaler who marketed the corn took special measures to maintain the field fresh quality of the corn. A local merchant was interested in using improved merchandising practices for sweet corn. Consequently, the product was controlled from the farm to the consumer. This pilot project turned out to be very much of a "conversation piece" among consumers and food handlers. It also brought a representative from one of the adjoining State universities into the county for details of the operation.

To the consumer this educational venture resulted in sweet corn with flavor characteristics of corn which he used to pick from his own garden. To the merchant it meant a 500% increase in sales of sweet corn. To the producer who sold the corn it meant \$139 per acre net return.



7. Vertical Integration in Agriculture: The key idea in integration is the transfer by the grower of part of the management decision-making to an integrator in return for certain advantages. During the past year, the Cooperative Extension Service has devoted considerable effort to educational work dealing with the economic implications of vertical integration and contract farming.

Emphasis has been placed on the meaning of integration in agriculture; conditions encouraging it; what a farmer should consider in becoming involved in vertical integration; and points to consider in evaluating contracts.

Federal Extension Service contributions to this work include staff work within the United States Department of Agriculture, liaison between the Department of Agriculture and the State Extension Services and between States, and participation in training of State Extension personnel.

An informal survey was conducted from which a report of extension and research activities in the Land-Grant Colleges resulted. This report was distributed to State Extension people. It has greatly stimulated the exchange of information and publications on vertical integration, thus bringing about wider use of the limited information.

The broiler industry provides instances of extension educational effort related to vertical integration. Extension material on costs of production, budgets, and overhead costs has been used extensively by individual poultrymen, processors, and credit agencies as a guide to adjustments, expansion, development of contract plans, and in credit policies.

- D. Home Demonstration Workers Assist Farm Homemakers: Home economics Extension workers assisted more than 6,873,000 families in making changes in homemaking practices in 1957, an increase of about 20% over 1954 (Table I). Approximately 1,330,000 homemakers (20%) assisted were in organized groups, but more than 5,500,000 (80%) were assisted outside of organized group activities, such as through interest groups, home visits, tours, and other mass methods.

Table I - Assistance in Homemaking

<u>Item</u>	<u>1954</u>	<u>1957</u>
Farm families assisted .....	2,276,460	2,267,042
Rural non-farm families .....	1,327,338	1,636,208
Urban families .....	2,133,157	2,970,170
Total families assisted .....	5,736,965	6,873,420
Groups organized to carry on adult home demonstration work..	65,454	65,519
Membership in such groups .....	1,520,901	1,372,596
Percent of families assisted in groups .....	26.5	20.0
Families assisted not members of organized groups .....	4,216,064	5,500,824
Percent of families assisted outside of organized groups ...	73.5	80.0

Home Management, Housing, and Home Furnishing Programs Meet the Growing Demands for Assistance: County home demonstration agents have responded to the demand for all areas of home management, housing, and furnishings work by assisting over 6,500,000 homemakers with such problems as work simplification; selection, use and care of household equipment and furnishings; housing; and family financial planning. This work assists families to use their money wisely in buying; to simplify and improve work patterns; to extend the life of durable household goods; and to plan the use of time, energy, money, and other resources to the best advantage; and to understand local and national forces affecting our economy which in turn will affect many individual families. In an attempt to serve an increasing number of families, Extension home economists are making greater use of all mass media. One example is the 1957 clothing program in Iowa. Homemakers asked for help in making over clothes for children. Since the need was Statewide, a plan was devised to coordinate all teaching media for optimum use of Extension personnel. Actual teaching was done by TV, supplemented by other mass media methods. Over 6,000 women enrolled in the series presented on one TV station. The same series was given by 4 other stations. In one county, over 2,000 women made their first contact with Extension through that program.

- E. 4-H Club Work and Work with Young Men and Women: The total 4-H Club enrollment for the United States in 1957 was 2,201,481 and the number of local 4-H Clubs was 90,671. The annual increase in



enrollment is around 40,000 members. The total number of 4-H Club Leaders is about 382,000. Recently much of this increase has been coming from rural non-farm and suburban areas as shown in the following table:

4-H Club Membership by Residence Location

	<u>1954</u>		<u>1957</u>		<u>1957</u>
	<u>Number</u>	<u>Per-</u> <u>cent</u>	<u>Number</u>	<u>Per-</u> <u>cent</u>	<u>over</u> <u>1954</u>
Farm .....	1,395,110	66	1,315,261	60	-6
Rural non-farm .....	435,966	21	534,245	24	22
Urban .....	273,711	13	351,975	16	29
Total members ....	2,104,787	100	2,201,481	100	5

Certain facts stand out in current analysis of our country's youth population. In addition to the decrease in the number of farms and farm families there is also a decrease in the number of farm youth, but there is a sharp increase in number of rural non-farm, urban and suburban youth. The age group 20 to 30 years is increasing in number. These trends will have impact on the nature of programs for 4-H Clubs and YMW Programs.

Some of the current program emphases under consideration and in process of exploration or development are: (1) a program for assisting youth in career exploration and supplementing any career counseling services available, (2) a Community Development Program, (3) a Science Emphasis Program, and (4) a Young Men and Women's Program, which is directed to young people approximately 18 to 30 years of age whose interests and needs have matured beyond the 4-H Club program, but who have not yet been effectively absorbed into adult extension programs. A total of 268,999 young people were reached through special programs in 1957. Continuing programs relate to young farmers, young homemakers, young married couples, and unmarried older youth.

Many States today are concerned with the need for emphasizing the health program phases of 4-H work. California, which previously had no 4-H health program, called upon the Extension specialist to help develop such a program, and several counties were selected to serve as pilot areas. Enrollment has more than doubled in the pilot counties. Extension is cooperating with the President's Council on Fitness of American Youth. Emphasis is being given to adequate and proper nutrition, personal health improvement and balanced recreation programs for youth.

4-H Club work in conservation of natural resources is being directed to a unified educational approach for economy, organizational simplicity and a belief that equal or superior results will ensue. Of the more than 2,000,000 boys and girls in 4-H Clubs, 187,928 were involved in conservation activities in 1957.



4-H Club Members Apply Improved Practices: A 20-year-old 4-H Club member has taken over his family's 64-acre farm and made it into a paying enterprise by applying the improved farming methods he has learned during 10 years of 4-H Club work. He grazes his hogs in 10 acres of rye and millet and grows cotton and tobacco by following improved practices recommended by 4-H Club workers. A 14-year old Jefferson County, Arkansas, 4-H Club boy grossed \$2,000 with about \$1,100 net income, from 4 acres of cotton and 8 acres of soybeans for his 1957 projects. His yields were just over 1 1/2 bales of cotton per acre and 54 bushels of beans per acre. These are at least double the State average yields. He used his father's equipment for most of the work to grow the crops, but paid for its use. He followed soil test recommendations and kept accurate production-cost records.

Automotive Care and Safety is Emphasized: During 1957 a new 4-H project in Automotive Care and Safety was started on a pilot basis in 90 counties across the United States. This project is designed for boys and girls between the ages of 15 and 18. Insurance companies have recognized the poor driving habits of young people by raising insurance rates for this age group as much as 40%. A study at Iowa State College showed that for every 100,000 miles of travel, accident rates by age groups were:

16-21 years - 1.5	28-47 years - 0.7
22-27 years - 1.0	48-65 years - 0.6

About 1,500 boys and girls participated in this project. The material for the project was prepared cooperatively with Federal Extension Service, State Extension personnel and the Automotive Safety Foundation. It is expected that this project will have a great deal of influence on the youngsters of pre-driving and early-driving age, reaching boys and girls in both rural and urban locations and teaching them the basic care and safe operation of the automobile. Proper maintenance of an automobile can be estimated at \$200 per year per member or in 1957 about \$300,000. It supplements rather than competes with the driver training education program. This program will be out of the pilot stage in 1959 and rapid expansion of enrollment is anticipated, reaching 40,000 youngsters in 1959.

- F. Helping Rural People Adjust to Change: Most significant and striking in all new directions of Extension activities were those dealing with the problems of agriculture in a rapidly changing society. Many of Extension's new frontiers seem to lie in providing educational assistance needed and desired by farmers to understand better the off-farm influences that affect them. A good example of progress in this area is now being carried out by the Extension Service in Iowa. Upon the encouragement of farm leaders, the problems of farmers in a changing agriculture were brought sharply into focus by a series of seminars on the Iowa State College campus.

The information developed therefrom was widely disseminated by means of a series of semi-technical bulletins. Further encouragement for Extension to undertake a broad educational program in the area came from the county Extension councils, from the Iowa newspapers and radio stations, and popular approval of the public generally.













- G. Farmers Need Assistance with Tax and Social Security Problems: More than 640,000 farmers were assisted by Extension agents in problems relating to income taxes and Social Security benefits. More accurate farm records have contributed to more accurate reporting and many instances savings in taxes. Farm records plus information about Social Security programs helped many farmers qualify for benefit payments. In more than 2800 counties Extension workers instructed farmers and distributed educational materials. State Extension economists instructed tax consultants and others who help farmers make their income returns, usually in cooperation with representatives of the respective agencies.
- H. Extension Work with Indians: The agricultural Extension program renders technical assistance to Indians helping them avail themselves of all existing improved methods in agriculture, home economics, marketing, and rural community development provided through State, Federal and private agencies to bring about their complete independence and self-sufficiency. Joint Federal-State conferences of Extension and Bureau of Indian Affairs personnel have been held in all States concerned with working with Indians.
- I. County Program Determination by Local People: This is program planning on both a short and longtime basis, for which Extension provides leadership and guidance. It is characterized by: (1) Involvement of many individuals and representatives of organized groups such as the 4-H Club Council, Livestock Association, County and Home Demonstration Agents' Committee, Dairy Herd Improvement Association and County Teachers' Association in a systematic planning effort; (2) critical study and analysis by local people of their present use of resources and opportunities for sound adjustment. This is based on careful interpretation of all available pertinent information as related to family, community and county situations, needs and problems; (3) development by the people of a comprehensive longtime plan, to achieve the goals they establish for themselves.

County planning is under way in approximately 1,500 counties of the United States. In a limited number of States the work is being carried on in all counties simultaneously; in the other States from 10 to 65% of the counties are engaged in the effort.



EXHIBIT B

PROGRESS IN EXTENSION TRAINING

		Number of States and Territories	
1. Assigned major responsibility for extension training to a well qualified staff member.	1952		20
	1957		35
2. Appointed a training committee to plan a longtime coordinated training program.	1952		23
	1957		32
3. Provide for a series of undergraduate courses to fit the student interested in an extension career for work in extension.	1952		33
	1957		37
4. Encourage enrollment in regional schools by:			
a. Paying part of study expenses.	1952		19
	1956		29
b. Giving official time.	1952		22
	1956		35
5. Provide leave privileges for graduate study (a quarter or more).	1947		20
	1957		36

In 1957, 18.5% of the total extension personnel, State and county, had three weeks or more of special training during the year.



J. Insuring the Efficient Use of the Extension Dollar through Training and Research:

Training: A staff kept fully informed of the most recent subject-matter research findings and the most effective extension teaching methods is in the best position to efficiently serve the people. The Federal Extension Service through its training and extension research program provides the necessary leadership in the total development of competent extension workers.

Federal Extension personnel work with the States on training matters through 2 standing committees of the American Universities and Land-Grant Colleges Association and 2 task forces having major responsibilities for Extension training. They have explored ways to assess training needs and are working on an inventory of training organization and activities. The task force working with the National Project on Agricultural Communications advised on plans for training sessions in the written communications and visual aspects of communication in which a total of 40 States have expressed an interest. The Federal Extension Service also provides leadership in training through the Leader of Training appointed in 37 States. Assistance in pre-service training was given through the development of undergraduate planning guides and seminars for instructors of courses in Extension education. In-service training assistance was given through the communications training mentioned above, workshops, and the 5 regional Extension summer schools. Graduate training assistance was effected through scholarships, fellowships, and individual consultation. Progress in training is reflected in Exhibit B.

New Studies: In 1957, studies were started to determine: (1) The effectiveness of programs designed to convey marketing information to consumers; (2) educational needs of cotton farmers relative to cotton production and marketing; (3) effectiveness of a county agricultural agent's daily television program; and (4) time use of State 4-H Club workers.

Studies Under Way: Continuing from previous years are studies designed to: (1) Test the validity of an aptitude test for use in hiring county extension workers; (2) test the effectiveness of the intensive approach in extension work; (3) determine an effective way to work with low-income persons; (4) evaluate the total extension program in a county and (5) determine needs of farm people for State and U. S. Department of Agriculture popular publications on farming and homemaking.

Studies Concluded: Field work has been concluded and data are being analyzed for studies related to: (1) Organization of 4-H Club work; (2) training of 4-H Club local leaders; (3) review of Extension Research; (4) Extension supervision; and (5) membership in home demonstration clubs.

Teaching Methods Improved through Research: Extension research is designed primarily to improve the effectiveness of extension teaching methods, which in turn affect the degree of acceptance to phases of extension work. Use of research findings is therefore usually expressed first in the actions of extension workers and later in actions of the farmer and homemaker.

For example, the recently-completed study of home demonstration membership indicated a need for and interest in the remodeling of dwellings, better use of the food freezer, money management and time management. In Acadia Parish, Louisiana, the Extension Advisory Committee used the study findings to plan its homemakers program for 1958, being sure to gear it to meet the needs and interests as shown in the study. The Committee made recommendations as to ways the home agents could reach a greater percentage of the people, especially the young homemaker and non-club member who had not been reached effectively. Six other States also report similar use of study findings.

Publications are one of the widely used methods of supplying information which the public wants, and of carrying out extension programs. Much criticism had been leveled at popular publications for their dry style, long sentences, and difficult words. Over the past 15 years the Federal Extension Service has taken the leadership in helping personnel in the States and in the Department of Agriculture analyze their publications for improved presentation and readability.

To shorten the lag in applying extension research findings by extension workers, the Federal Extension Service has developed a series of Research Summaries that highlight findings from studies that bear upon extension work. Since these summaries are short and inexpensive, they provide an economical and practical way of disseminating research findings.

- K. Extension Workers Must Employ Modern Communications Techniques: Progress has been made during the year in adjusting State and county communication methods to changing problems, audiences, and mass and visual teaching channels. Forty-one State Extension Services now have communications training teams and with the help of nationally-developed training plans, manuals, and visual material have, during the year, extended a basic type of modernized, balanced communications training to most extension workers in their States.

To reach the farm audience quickly, the Cooperative Extension Service employed the following mass media systems of communication: (1) About 785,000 news stories were prepared by county extension agents for use in daily and weekly newspapers and magazines; (2) television and radio continued to increase as a means of reaching large numbers of people, and 48% of the counties employing extension agents made an average of 11 broadcasts per county with more than 261,000 radio talks broadcast or prepared for broadcast, and 78% of the counties employing extension



agents reported an average of 109 broadcasts per county or 2 a week; and (3) about 30,900,000 bulletins, circulars, and pamphlets from State agricultural colleges, U. S. Department of Agriculture, and other agencies were distributed in connection with office calls, farm and home visits, and extension meetings, and requests for information by letter or phone.

- L. Management Assistance to the State Extension Services: "How to Improve State Extension Management Operations" was the theme of a management training conference conducted by the Federal Extension Service Administrative and Management Operations staff at Denver during the past year. This was the first in a series of management training meetings held as a result of a recommendation from the States that the Federal Extension Service conduct one such meeting annually. The reaction of State Extension personnel to the meeting in general, and the increased emphasis on management systems and methods in particular, was most favorable.

Work has been expanded in the development and installation of State and county office records and filing systems. The State and county Extension Services are anxious to establish a uniform, simplified record system. The result of a pilot installation in one State is being extended to others as rapidly as possible.

The Federal Extension Service developed with the States a system for reporting State "intentions to print" of popular publications at quarterly intervals. The Federal Extension Service, in turn, summarized this information by subject matter and circulated it among the States for their use in planning publication programs. The purpose was to provide for an exchange of information on the printing plans of each State for popular publications in advance of printing and provide a means for authors, editors, and administrators to make arrangements with other States, if they so desire, for the purchase of publications prior to printing. Information on the "intentions to print" of various States is also used as a guide to cooperative printing of publications on subjects of regional interest. The financial savings accruing from such interstate use of publications is quite significant when measured in terms of author and editor time required in preparing publications, not to mention some saving in printing costs.



STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS AND OTHER FUNDS

(Includes only those amounts which, by November 30, 1958, were actually received or programmed for 1959 or 1960. Since work for other agencies is performed on a service basis, at the request of those agencies and for their benefit, it is not practicable to estimate in advance the amounts to be received in most cases.)

Item	: Obligations, : 1958	: Estimated : Obligations, : 1959	: Estimated : Obligations, : 1960
Allocations and Working Funds (Advances from other agencies):			
<u>Commodity Stabilization Service - For</u>			
technical assistance to Agricultural			
Stabilization and Conservation			
Committees in Alaska:			
<u>Administrative Expenses, Section 392,</u>			
<u>Agricultural Adjustment Act of 1938</u>	\$800:	\$800:	\$800
<u>Local Administration, Section 388,</u>			
<u>Agricultural Adjustment Act of 1938</u>	7,170:	12,492:	12,492
Total, Commodity Stabilization			
Service .....	7,970:	13,292:	13,292
<u>International Cooperation Administra-</u>			
<u>tion - For training and technical</u>			
assistance activities .....	121,547:	142,028:	- -
Total, allocations and working funds	129,517:	155,320:	13,292
Trust Funds:			
<u>Miscellaneous Contributed Funds:</u>			
For cooperative work with land-grant			
colleges on in-service training activ-			
ities through summer-session courses			
for extension workers .....	2,010:	4,671:	4,600
Obligations Under Reimbursements From			
<u>Governmental and Other Sources:</u>			
<u>Federal Extension Service:</u>			
For miscellaneous services to other			
accounts .....	43,765:	34,290:	34,290
TOTAL, OBLIGATIONS UNDER ALLOTMENTS			
AND OTHER FUNDS .....	175,292:	194,281:	52,182

FARMER COOPERATIVE SERVICE

Purpose Statement

The Farmer Cooperative Service was established following the enactment of the Farm Credit Act of 1953 (Public Law 202, August 6, 1953), which transferred the research and technical assistance work for farmers' marketing, purchasing and service cooperatives, under the Cooperative Marketing Act of 1926 from the Farm Credit Administration to the Secretary of Agriculture.

The Service conducts research, advisory, and educational work with cooperatives on problems of organization, financing, management policies, merchandising, costs, efficiency, and membership to help farmers who are members of such organizations improve the operations of their businesses. It cooperates with the Extension Service, Land-Grant Colleges, Banks for Cooperatives, State Departments of Agriculture, and other agencies to bring about better understanding and application of sound cooperative principles and practices. It also advises other Federal agencies on problems relating to agricultural cooperatives.

The Service carries on its work through three program divisions - Marketing, Purchasing, and Management Services. On November 30, 1958 the Service had 114 employees, 113 of whom were full-time and 1 part-time, all stationed in Washington, D. C.

	Estimated Available, <u>1959</u>	Budget Estimate, <u>1960</u>
Appropriation	\$620,000	\$620,000





Salaries and Expenses

Appropriation Act, 1959 .....	\$578,000
Proposed supplemental, 1959, for pay act costs .....	<u>42,000</u>
Base for 1960 .....	620,000
Budget Estimate, 1960 .....	<u>620,000</u>

PROJECT STATEMENT

Project	1958	1959 (estimated)	1960 (estimated)
1. Research and technical assistance for farmers' cooperatives a/	\$586,112:	\$620,000:	\$620,000
Unobligated balance .....	2,388:	- - :	- -
Total pay act costs (P.L. 85-462)	[20,372]:	[47,025]:	[47,025]
Total available or estimate .....	588,500: b/	620,000:	620,000
Transferred from "Conservation reserve, soil bank programs, Agriculture" .....	-10,500:	- - :	
Proposed supplemental due to pay increases .....	- - :	-42,000:	
Total appropriation or estimate ..	578,000:	578,000:	

a/ Represents obligations. The amount of \$592,149 indicated for 1958 in the 1960 Budget represents applied costs. The difference of \$6,037 reflects, primarily, the excess of publications and equipment used in 1958 over orders placed in that year.

b/ Includes \$2,574 obligated in 1958 under the advance procurement authorization contained in Public Law 85-386.



## STATUS OF PROGRAM

The Farmer Cooperative Service conducts research, educational and advisory work to assist the 3 million farmers who are members of approximately 10,000 marketing and purchasing cooperatives and related business service associations. In 1956, these farmers held a total of over 7.7 million memberships in their cooperatives, an increase of 1.7 percent over the previous year.

The Service acquires, analyzes, publishes and disseminates information relative to farmer cooperatives to further their sound development. This work is carried on in cooperation with general farm and cooperative organizations, land-grant colleges, Federal and State extension services and State Departments of Agriculture.

### Current Activities:

The work of Farmer Cooperative Service helps farmers strengthen their cooperative enterprises by improved organization structures, management and operating methods. The high costs of farm supplies and increased costs of marketing farm products are demanding adoption of more efficient organization, management and operating techniques. Changes in agricultural production are requiring the establishment of new marketing and purchasing cooperatives and the reorganization and consolidation of existing cooperatives.

Cooperatives deal with large, well-integrated businesses having extensive resources and bargaining power. Experience is demonstrating that further integration by cooperatives is needed if they are to represent their farmer members to best advantage. Many cooperatives have already shown that they can retain control of the processes of integration and obtain the resulting benefits for their farmer members.

Farmer Cooperative Service is receiving increased requests to help cooperatives on their problems in developing better integrated and stronger organizations to give farmers increased bargaining power, greater operating efficiency and other large-scale organizational advantages.

The Service is assisting in Department-wide efforts to analyze and evaluate the effects of integration so as to help farmers meet its impact. In addition, the Service is participating in Department efforts to improve rural living standards and increase farm income through the rural development program.

The Service continues to carry on active long-range educational programs designed to strengthen membership participation and democratic control and improve public understanding of sound cooperative principles and practices. The Service provides national and state statistics on trends in growth and character of cooperatives for the benefit of farmers, extension workers and others participating in strengthening these farmer-owned organizations.

Farmer Cooperative Service completed work on 84 projects or specific phases of projects during the fiscal year 1958, and it is estimated that about the same number will be completed in 1959 and in 1960.



Selected Examples of Recent Progress:

1. Integrated Hog Production and Marketing Studied. Hog producers and their cooperatives are turning to integration to get more bargaining power to improve service and sell hogs on a graded basis. In Iowa, assistance was given in establishing an integrated cooperative program for production, marketing and financing hogs. In Missouri the Service helped develop a statewide livestock marketing association with concentration points in the country and a central sales agency to sell hogs direct to packers. In Virginia the feasibility of an integrated hog marketing program was analyzed.
2. Egg Cooperatives Consolidated. Egg cooperatives in many producing areas are local unaffiliated organizations providing only limited services to their farmer members. Consolidation of volume is necessary for effective sales programs to meet the needs of large retailers. The Service has helped many of these smaller cooperatives find ways to combine their operations. A study of egg marketing cooperatives in New England revealed that handling costs could be reduced through greater volume and integration of production and marketing services. A study of two regional supply and poultry associations in central California revealed that these two associations by working together could reduce costs and improve buying power. Assistance was also provided to cooperative groups in Iowa in developing a statewide cooperative egg marketing program.
3. Dairy Processing Costs Compared. Cost comparisons between cooperatives show marked differences in operating efficiency. A study of dairy cooperatives in Iowa and South Dakota revealed that spray drying expenses varied from 2.5 to 5.0¢ a pound and butter marketing expenses from 1.3 to 3.9¢ per pound. With such comparative data management of cooperatives can locate and correct inefficient methods, decide best alternative operating procedures, and price their products more intelligently. This study will result in material savings to the eight associations studied and, in addition, will help other dairy processing cooperatives improve efficiency.
4. Inventory Managing in Local Farm Supply Cooperatives Improved. Inventory control is an important problem of many farm supply cooperatives. The Service studied local associations in the Pacific Northwest and in the Minnesota-Dakotas area. The results of these studies indicated that in procuring goods inventories could be better managed by the use of carload purchases, customer advance orders, consignment purchases and of association-owned transports. In distributing supplies, cardoor deliveries and pre-season delivery of fertilizer and seed would result in better turnover. Many farm supply cooperatives could improve their inventory turnovers 50% or more through use of these better management methods.
5. Management Strengthened for Frozen Food Cooperatives. Advisory service to four frozen food lockers in two North Central states resulted in liquidation of unnecessary facilities, the establishing of a more vigorous merchandising program and the tightening of internal operating controls. Study and advisory assistance of this nature can help frozen food locker cooperatives cope with operating, management and facility problems and thus serve their farmer members more effectively.

6. Rural Credit Unions in Indiana Help Cooperatives. Rural credit unions can assist farm supply cooperatives to better control their credit. This is shown by a study of 42 credit unions in Indiana. Managers of supply cooperatives reported that the credit unions help the cooperative increase volume and membership. The credit unions enable farmers who use the credit unions to make savings from cash discounts on farm supply purchases. The study also indicated that there were opportunities for improvement of credit union operations through better field coordination, member education and training programs.
7. Transportation Studies Aid in Locating Facilities. Increased transportation costs are of major concern in farmer cooperatives marketing farm products and distributing production supplies. A study was made of the location of grain storage facilities to serve farmers efficiently in a midwestern state. The survey indicated the proposed location was favorable from the standpoint of economical and dependable transportation facilities and services essential to the storage operation. Another survey dealt with the proposed acquisition of an insecticide manufacturing plant to serve farmers in a Southwestern area. This study indicated the location being considered was advantageous for acquiring raw materials and distributing the manufactured products.
8. Revolving Fund Method of Financing Farmer Cooperatives Analyzed. This study directed attention to developing a better understanding of the revolving fund method of financing and the use farmer cooperatives are making of it. The analysis indicated that the revolving fund plan is an important tool for internal financing of farmer cooperatives and revealed that 61 percent of the associations studied used this method for obtaining part or all of their membership capital.
9. Training in Cooperative Membership Relations. Farmer Cooperatives are getting larger and their activities are more widespread and complex. The Service has assisted in developing training programs for cooperative personnel as well as for cooperative leaders in the fundamentals of good membership relations. This work has been accomplished largely through workshops and clinics at State and district levels that are jointly sponsored by State cooperative councils, educational agencies and the Service.
10. Statistics Developed to Show Trends in Integration. Increased concentration of buying power in the distribution of farm products and advancing costs of farm production supplies and services have focused attention on the need for a study of the trends in integration in the business operations of farmer cooperatives. Such an analysis requires detailed statistical information on the extent and character of the horizontal and vertical integration that has so far taken place in farmer cooperatives. The first study undertaken to provide this information is a survey of forty major regional cooperatives and provides detailed statistical information on trends in the distribution, processing and production of petroleum products by these organizations and their estimates on petroleum products handled by affiliated local cooperatives.

Another study dealing with integration is underway to obtain information from local and regional dairy cooperatives and milk bargaining cooperatives on the character of their operations and services in the manufacture



and distribution of dairy products. These statistical studies will provide data necessary for a better understanding of trends in integration in farmer cooperatives, and provide basic information essential for further research, service and educational work in assisting farmers to make their self-help organizations successful and effective business enterprises.



STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS AND OTHER FUNDS

(Includes only those amounts which, by November 30, 1958, were actually received or programmed for 1959 or 1960. Since work for other agencies is performed on a service basis, at the request of those agencies and for their benefit, it is not practicable to estimate in advance the amounts to be received in most cases.)

Item	: Obligations, : 1958	: Estimated : Obligations, : 1959	: Estimated : Obligations, : 1960
Allocations and Working Funds (Advances from other agencies):			
International Cooperation Administration:			
For expenses in connection with training and technical assistance activities .....	\$8,115:	\$8,800:	- -
Department of Agriculture, Agricultural Marketing Service:			
Marketing Research and Agricultural Estimates:			
For marketing research activities	386,142:	407,800:	\$407,800
Total, Allocations and Working Funds .....	394,257:	416,600:	407,800
Obligations Under Reimbursements from Governmental and Other Sources:			
Salaries and expenses .....	2,776:	- -	- -
TOTAL, OBLIGATIONS UNDER ALLOTMENTS AND OTHER FUNDS .....	397,033:	416,600:	407,800



## SOIL CONSERVATION SERVICE

### Purpose Statement

The Soil Conservation Service was established by the Act of April 27, 1935 (16 U.S.C. 590a-590f). It assists soil conservation districts and other cooperators in bringing about physical adjustments in land use that will conserve soil and water resources, provide for agricultural production on a sustained basis, and reduce damage by floods and sedimentation. The Service also develops and carries out special drainage, irrigation, flood prevention, and watershed protection activities in cooperation with soil conservation districts, watershed groups, and other Federal and State agencies having related responsibilities.

### Conservation Operations Program Activities:

The Service provides technical and other assistance to soil conservation districts and other cooperators in the 49 States, Hawaii, Puerto Rico, and the Virgin Islands, in helping farmers and ranchers carry out locally-adapted soil and water conservation programs. As of June 30, 1958, farmers and ranchers had organized 2,806 conservation districts. The assistance furnished by the Service includes:

- (a) Soil surveys to provide physical land facts needed to determine the use capabilities and conservation treatment needs of each acre of farm and ranch land, and the publishing of soil survey reports and maps which are useful also to other Federal and State agencies and the public in the development of special land use programs and for other purposes;
- (b) Technical help to farmers and ranchers in developing and applying conservation plans which provide for the best possible use by the farmer or rancher of his land, labor, equipment and financial resources;
- (c) The grant (at no cost to the Service) of some special types of equipment not readily available to the farmer but needed to establish certain conservation practices;
- (d) Field-scale trials of promising new species and strains of grasses, legumes, trees, shrubs, and other plant materials to determine their suitability for soil and water conservation purposes, and cooperation with State and private organizations to promote adequate commercial production and distribution of plant materials useful for conservation land use and treatment measures. Limited amounts of plant materials needed for this purpose are produced at seventeen plant materials centers;
- (e) Stream-flow forecasts developed from snow surveys in the Western States to provide for efficient seasonal utilization of available water supplies for irrigation and other purposes.



Watershed Protection Program Activities:

The Service has general responsibility for administration of the Watershed Protection program of the Department, and the formulation and development of its guiding principles and procedures. The program, conducted under authorities found in the Watershed Protection and Flood Prevention Act, P. L. 566, 83rd Congress (16 U.S.C. 1001-1007) consists of:

- (a) Making investigations and surveys of proposed small watershed projects and working with local sponsoring organizations in the preparation of project work plans;
- (b) Cooperating with States and other local public agencies in the installation of works of improvement designed to reduce erosion, floodwater, and sediment damage, and further the conservation, development, utilization, and disposal of water;
- (c) Making loans (by the Farmers' Home Administration) to local organizations to finance the local share of the costs of carrying out works of improvement; and
- (d) Cooperating with other Federal, State, and local public agencies in making investigations and surveys of the watersheds of rivers and other waterways for the development of coordinated water resources programs.

In cooperation with soil conservation districts and other local groups and organizations, the Soil Conservation Service provides technical and financial assistance in the planning and installation of water management and erosion control measures such as diversion ditches and dikes, waterflow retarding structures, debris and desilting basins, stream-channel improvements, floodways, gully control structures, roadside stabilization measures, etc. It also provides accelerated technical assistance to farmers and ranchers in these small watersheds in the planning and application of soil and water conservation practices.

The Forest Service participates in the program, generally by cooperating with State foresters, in planning and providing intensified fire protection and certain technical forestry assistance to landowners in applying forest and woodland improvement measures on non-Federal lands and by installing land treatment and structural measures on lands under its administration. The Agricultural Research Service furnishes assistance in the assembly, correlation, and analysis of economic data needed in the planning phases of the program. The Farmers' Home Administration makes loans to local sponsors to finance their share of costs of the small watershed projects. The Weather Bureau and Geological Survey provide assistance in gathering and analyzing hydrologic data. The Bureau of Land Management and the Bureau of Indian Affairs participate in the planning and installation of works of improvement on lands under their jurisdiction.

The Agricultural Research Service, Forest Service and the Soil Conservation Service cooperate with other Federal, State and local public agencies in making surveys and investigations of the watersheds of rivers and other waterways for the development of coordinated water resources programs.

#### Flood Prevention Program Activities:

Pursuant to the Flood Control Act of June 22, 1936, as amended and supplemented (33 U.S.C. 701-709), and under policies established by the Secretary, the Service has general responsibility for administration of the Flood Prevention program of the Department, and the formulation and development of its guiding principles and procedures. Since the passage of the Watershed Protection and Flood Prevention Act (P. L. 566, 83rd Congress) the Flood Prevention program is limited to the planning and installation of watershed improvement measures, primarily for flood prevention, in the 11 authorized watersheds.

The Soil Conservation Service plans and installs works of improvement such as floodwater retarding structures, stream-channel improvements, gully stabilizing and sediment control measures, diversions, floodways, etc., in cooperation with soil conservation and flood control districts and other State and local agencies. The Service also provides technical assistance to landowners to accelerate the installation of land treatment measures which contribute to flood prevention.

The Forest Service participates, generally by cooperating with State foresters, in planning and providing intensified fire protection and certain technical forestry assistance to landowners in applying forest and woodland improvement measures on non-Federal lands and by installing land treatment and structural measures on lands under its administration.

#### Water Conservation and Utilization Program Activities:

Under the authority of the Acts of August 11, 1939 and October 14, 1940 (16 U.S.C. 590-y-z-10), as amended and supplemented, June 28, 1949 (63 Stat. 277) and September 6, 1950 (7 U.S.C. 1033-39) the Service carries on a water conservation and utilization program in the Eden Valley project in Wyoming. This work has been completed on all other projects planned for development. Irrigated and irrigable lands (both Government and privately-owned) are developed for efficient use of irrigation water. Settlement opportunities are provided for veterans and needy farm families through the sale of newly-developed farm units. Technical assistance is furnished to settlers within the authorized project area to aid them with their soil and water conservation and land use problems.

#### Great Plains Conservation Program Activities:

The Great Plains Conservation Program, authorized by P. L. 1021, 84th Congress, provides (a) long-term cost-sharing with farmers and ranchers in designated counties of the ten Great Plains States to aid them to achieve a more stable agricultural production, protect their lands from erosion, and develop farming and ranching practices to cope more adequately with the climatic hazards which characterize the area, and (b) technical and other assistance in planning, scheduling, and installing the essential soil and water conservation measures, farming systems, and land-use adjustments upon which the contracted cost-sharing arrangements are based. Other agricultural programs of the Department in the Great Plains have also been directed toward helping farmers and ranchers make the adjustments needed to protect their soil and water resources and achieve a more stable agriculture.



A Great Plains Inter-Agency Group, consisting of representatives of the Soil Conservation Service, Agricultural Conservation Program Service, Agricultural Marketing Service, Agricultural Research Service, Commodity Stabilization Service, Farmers' Home Administration, Federal Crop Insurance Corporation, Federal Extension Service, Forest Service and Office of Information, has been designated to assure effective coordination of all Departmental resources in the program. The Soil Conservation Service has been assigned general responsibility for the Great Plains Conservation Program and the representative of that Service is chairman of the Inter-Agency Group. Full cooperation of State and local governmental agencies and of other groups, organizations, and individuals having an interest in or affected by the program is encouraged.

Program Administration:

The Soil Conservation Service maintains its central office in the District of Columbia but most of its activities are highly decentralized to forty-eight State and two territorial offices, six cartographic units, six engineering and watershed planning units, and about 3,400 area and work unit headquarters which carry on the technical programs of the Service in conservation districts, watersheds, and water conservation and utilization projects. In addition, the Service has about 50 specialists in the fields of agronomy, soils, biology, forestry, information, plant materials, and range conservation who are attached to the Washington office but located at various points in the field, to provide for necessary program coordination and the technical assistance in these specialty fields.

As of November 30, 1958, the Soil Conservation Service had 14,012 full-time employees (263 in Washington and the balance in the field) and 3,060 part-time employees. The latter are generally employed in the field during the seasonal periods when there is need for additional assistance in applying conservation practices.

<u>Appropriations</u>	<u>Estimated Available, 1959</u>	<u>Budget Estimates, 1960</u>
Conservation operations	\$81,108,000	\$81,072,000
Watershed protection	a/ 25,500,000	a/ 20,000,000
Flood prevention	a/ 18,000,000	15,000,000
Water conservation and utilization projects	a/ 335,000	75,000
Great Plains conservation program	a/ 10,000,000	12,500,000
Total	<u>134,943,000</u>	<u>128,647,000</u>

a/ In addition, prior year balances available.



Summary of Appropriations, 1959 and Estimates, 1960

Appropriation Item	: Estimated Available, 1959	: Budget Estimates, 1960	: Increase (+) or Decrease (-)
Conservation operations .....	\$81,108,000	\$81,072,000	-\$36,000
Watershed protection .....	a/25,500,000	b/20,000,000	-5,500,000
Flood prevention .....	c/18,000,000	15,000,000	-3,000,000
Water conservation and utilization projects .....	d/335,000	75,000	-260,000
Great Plains conservation program ....	e/10,000,000	12,500,000	+2,500,000
Total .....	134,943,000	128,647,000	-6,296,000

a/ In addition, \$16,795,833 is available from prior year balances of which \$10,000,000 is estimated to be carried over for use in the 1960 fiscal year.

b/ In addition, \$10,000,000 is estimated to be available from prior year balances.

c/ In addition, \$1,376,362 is available from prior year balances.

d/ In addition, \$17,185 is available from prior year balances.

e/ In addition, \$4,363,852 is available from prior year balances.



(a) Conservation Operations

Appropriation Act, 1959 .....	\$74,780,000
Proposed supplemental, 1959, for pay act costs .....	6,328,000
Base for 1960 .....	81,108,000
Budget estimate, 1960 .....	81,072,000
Decrease (due to provision in the direct appropriation to the General Services Administration for certain leasing costs previously paid from this appropriation) .....	<u>-36,000</u>

PROJECT STATEMENT

Project	1958	1959 (estimated)	Decrease	1960 (estimated)
1. Assistance to soil conservation districts and other cooperators:				
(a) Planning, application and maintenance of practices .....	\$74,188,516	\$80,528,000	-\$36,000(1)	\$80,492,000
(b) Observational field testing of conservation:				
plant materials .....	537,639	580,000	- -	580,000
Unobligated balance .....	318,845	- -	- -	- -
Total pay act costs (P.L. 85-462) .....	[2,756,655]	[6,424,000]	- -	[6,424,000]
Total available or estimate:	75,045,000	a/ 81,108,000	-36,000	81,072,000
Transferred from "Conservation reserve, soil bank programs, Agriculture" ..	-2,500,000	- -		
Proposed supplemental due to pay increases .....	- -	-6,328,000		
Total appropriation or estimate .....	72,545,000	74,780,000		

a/ Includes \$846,814, obligated in 1958 under the advance procurement authorization (P.L. 85-386).

DECREASE

(1) A decrease of \$36,000 due to provision in the direct appropriation to the General Services Administration for leasing costs previously paid from this appropriation. The gradual transfer of certain space assignment and leasing functions of the various Federal agencies to the General Services Administration was authorized by Section 1 of Reorganization Plan number 18 of 1950. The decrease of \$36,000 represents SCS leasing costs which will be assumed by General Services Administration under this authority in the 1960 fiscal year.





## STATUS OF PROGRAM

### Current Activities:

The planning and establishment of soil and water conservation measures on farm and ranch lands provided for under this item, is carried on primarily in cooperation with soil conservation districts. These districts are local units of government organized under State laws and responsible to the landowners and operators in the districts and to the State legislatures. They are founded upon the sound principle of local initiative, direction, and control and are formed only in response to the petition and favorable referendum vote of the landowners and operators within the district boundaries. By the end of the 1958 fiscal year 2,806 soil conservation districts had been organized in all 49 States, Hawaii, Puerto Rico and the Virgin Islands.

Assisting farmers and ranchers in planning and establishment of sound land use and the right combinations of soil, water and plant conservation measures on agricultural lands requires a combination of practical and scientific agricultural and engineering knowledge and skills. Soil conservationists, engineers and other technicians of the Soil Conservation Service work with farmers and ranchers in developing conservation plans which provide for the application of proper combinations of conservation practices for their individual farm or ranch enterprises. The development of conservation plans combines the practical experience of the operator with work of professional conservationists who have proficiency in a wide range of technical fields. The best available professional and scientific knowledge and judgment can be focused on special, new or complex conservation problems by specialists headquartered in the field or on the Washington office staff. Adherence to sound scientific principles and coordination of various agricultural techniques is required at all levels of the Service to maintain high standards of quality in all aspects of the Service work. Soil conservation districts and cooperating landowners are thus assured of practical and skilled technical assistance with their land use and land treatment problems.

The following types of assistance are being furnished to landowners and operators to carry out locally-adapted programs of soil and water conservation:

1. The services of soil scientists who make standard soil surveys and conduct special soil investigations essential to successful conservation planning and sound recommendations for the use and treatment of each acre of agricultural land. The surveys are made by mapping soil series, type and phases in which the soil texture, depth, slope, degree and extent of erosion and other soil characteristics are significant. These data are recorded in the field, acre by acre, on aerial photographic base maps. The soil surveys are conducted cooperatively with the land grant colleges and other State and Federal agencies. The survey reports and related soil maps after publication find continually expanding uses in other Federal, State, county and local programs involving land use. Appropriate detailed soils investigations are also made to guide structural design or conservation practice specifications in special or unusual cases.

2. The services of professional soil conservationists, engineers and other conservation specialists and aides who help farmers and ranchers plan and apply individual conservation programs for their farms or ranches. These jointly developed programs for the orderly adjustment of the use and treatment of each acre of their land are consistent with the land facts disclosed by the soil survey, and the labor, equipment and financial resources of the landowners and operators.
3. The grant to soil conservation districts of special equipment which is acquired from Federal government surplus at no cost to the Soil Conservation Service. This equipment is assigned to districts to assist farmers or ranchers in establishing conservation practices on their lands where the application of needed conservation practices has been delayed because appropriate equipment was not readily available or was beyond the ability of farmers and ranchers to purchase individually or in small groups.
4. Technical assistance to group enterprises on soil conservation or water control problems that can only be solved by group action of the cooperating landowners and operators. These problems may involve irrigation or drainage of valuable agricultural land, or stabilization of critical erosion and runoff areas to protect agricultural, industrial, or urban properties from flooding and sediment damage. Where engineers and other specialists needed are not available from other local sources, Service technicians provide consultation and technical assistance for the investigation, design, and installation of the treatment needed.
5. Streamflow forecasts developed from snow surveys in the Western States which serve as a basis for planning for efficient seasonal utilization of available water for irrigation and other purposes.
6. Field-scale trials of promising conservation plant materials to determine their suitability for erosion control purposes, and cooperation with commercial concerns to promote adequate production, propagation and utilization of new and uncommon strains of vegetative planting materials for conservation uses.
7. Technical assistance to Agricultural Conservation Program participants in the planning, lay-out, and establishment of specified conservation practices, both within and outside conservation districts. The major part of the cost of this work is reimbursed to the Service by the respective county Agricultural Stabilization and Conservation Committees.
8. Technical assistance to Conservation Reserve Program participants, who are also soil conservation district cooperators, in the selection of land for inclusion in the program, obtaining special soils information, and in planning and applying specified conservation practices, where the district cooperator had previously planned to install the related practice during the year.



In addition, in cooperation with other Federal, State and local agencies or groups, some special technical assistance on conservation measures, soil characteristics and limitations, and land use problems is also given to farmers, ranchers, public and quasi-public organizations and other groups, both inside and outside of conservation districts. Only about 6% of the farms and ranches and about 11% of the land in farms in the continental United States is outside of organized conservation districts. For example, borrowers under the Soil and Water Conservation Loan Program of the Farmers Home Administration are usually provided with investigative, design, specification and installation services for the structures or measures for which the loan is made. Consultation and some planning and installation services are also being provided to such organizations as State Highway Departments, City and County Planning or Zoning Boards, School Boards and Tax Commissions on runoff and floodwater problems, soils interpretations, erosion control, drainage and land use. Limited amounts of assistance are also provided on occasion to other cooperating groups or individuals on programs to develop better local understanding of erosion, water and land use problems and encourage more widespread adoption of conservation farming methods.

#### Examples of Recent Progress:

##### Organization of New Soil Conservation Districts

During the fiscal year 1958, a total of 49 new soil conservation districts, comprising 23,062,335 acres were formed. A total of 98 additions, comprising 17,886,637 acres were made to 65 existing districts during the year. Minnesota, Montana and California were the leading States where additional acreage was included in existing districts. Thirteen districts were dissolved, 9 of which became parts of new districts and the territory of others was added to existing districts. This made a net increase of 36 districts during fiscal year 1958 and a net increase of 36,327,078 acres in districts.

As of June 30, 1958 farmers and ranchers in all of the 49 States and territorial possessions had organized a total of 2,806 conservation districts, comprising a total area of 1,633,318,397 acres. The 4,548,917 farms and ranches in conservation districts as of June 30, 1958 comprised 94 percent of the total farms and ranches in the Nation as shown by the 1954 Census of Agriculture. Eighteen States and 2 territorial possessions were completely covered by districts.

It is anticipated that 30 new districts will be organized in the fiscal year 1959 and another 25 in 1960, which will bring the total to 2,861 districts as of June 30, 1960.

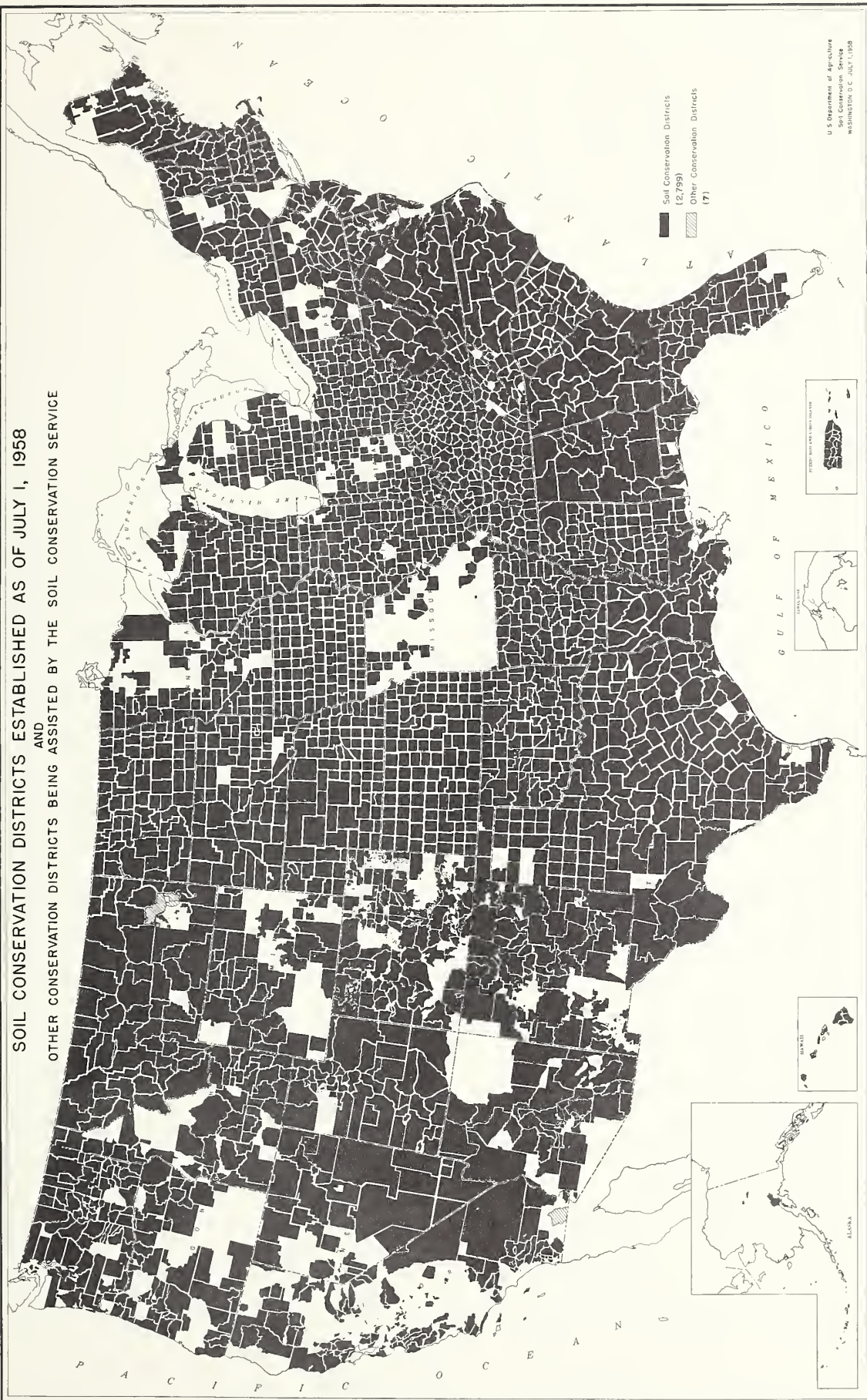
Conservation Districts Organized as of July 1, 1958

Kind of District	Location	Number of Districts	Approximate Area (Acres)	Number of Farms
Soil Conservation Districts	47 States	2,747	1,617,319,023	4,467,834
Soil Conservation Districts	Caribbean Area	19	2,269,711	54,270
Soil Conservation Districts	Hawaii	16	3,384,463	4,984
Sub-districts	Alaska	9	4,391,000	924
Work Area (called districts)	Connecticut	8	3,135,360	15,615
Grass Conservation Districts	Montana	6	1,933,850	452
Imperial Irrigation District	California	1	884,990	4,838
Total Conservation Districts		2,806	1,633,318,397	4,548,917

The attached map shows the conservation districts which had been organized as of July 1, 1958.



SOIL CONSERVATION DISTRICTS ESTABLISHED AS OF JULY 1, 1958  
AND  
OTHER CONSERVATION DISTRICTS BEING ASSISTED BY THE SOIL CONSERVATION SERVICE







Number of Farms and Acreage in Conservation Districts

Date	: Number of : Districts : Organized	: Total Acres : in Organized : Districts	: Approximate : Acres : In Farms	: Number of : Farms in : Districts
<u>Actual</u>	:	:	:	:
June 30, 1957 ....	: 2,770	: 1,596,991,319	: 1,020,076,913	: 4,517,715
Average per district .....	: --	: 576,531	: 368,259	: 1,631
June 30, 1958 ....	: 2,806	: 1,633,318,397	: 1,036,336,197	: 4,548,917
Average per district .....	: --	: 582,081	: 369,329	: 1,621
<u>Estimated</u>	:	:	:	:
June 30, 1959 ....	: 2,836	: 1,660,000,000	: 1,062,400,000	: 4,600,000
Average per district .....	: --	: 585,331	: 374,612	: 1,622
June 30, 1960 ....	: 2,861	: 1,685,000,000	: 1,078,000,000	: 4,650,000
Average per district .....	: --	: 588,955	: 376,791	: 1,625

### Survey Accomplishments

The following tables show the major survey accomplishments of the Service in assisting soil conservation districts and other cooperators. The two major types of surveys conducted by the Service are defined as follows:

- (1) Soil Surveys are those where soil series, types, slope gradients, and erosion conditions and their boundaries are determined in detail by actual field examination and where classification is in accordance with the standard nation-wide system of soil classification, to furnish information for conservation planning, land inventories, publications, and other purposes.
- (2) Range surveys are those made of different range sites and range conditions. A range site is an area or areas of similar soil and climatic conditions capable of producing essentially the same kind and amount of climax vegetation. The range condition is determined by the kind and amount of vegetation present on the range site and is classified as excellent, good, fair or poor. Both range site and range condition are delineated on a map after actual examination in the field (usually with the rancher). The maps are used for conservation and watershed planning on range lands.

Some reconnaissance surveys not tabulated below, are made on a broader basis for problem area delineations and broad program planning.

#### SURVEYS:

Type of Survey	: Unit	: 1958 Actual	: Total as of : 6/30/58	: 1959 FY Estimate	: 1960 FY Estimate
Soil Surveys ...	: Acres	: 41,094,326	: 575,099,856	: 42,325,000	: 43,250,000
Range .....	: Acres	: 12,850,038	: 78,879,507	: 13,000,000	: 13,210,000

### Soil Survey Reports

Thirty-five soil survey reports with accompanying maps were sent to the Government Printing Office for publication during the fiscal year 1958. A total of 66 of these reports were awaiting publication at the close of the fiscal year. Sixteen new soil survey reports and maps were published during the year for the following areas:

Madison County, Alabama  
 Santa Barbara Area, California  
 Dade County, Florida  
 Nicollet County, Minnesota  
 Bluewater Area, New Mexico  
 Franklin County, New York  
 Ontario and Yates Counties, New York  
 Pasquotank County, North Carolina

Houston County, Tennessee  
 Marion County, Tennessee  
 McWinn County, Tennessee  
 Washington County, Tennessee  
 McLennan County, Texas  
 Richfield Area, Utah  
 Fluvanna County, Virginia  
 Yakima County, Washington



There has been a total of 1,692 soil survey reports published since the work began in 1899. Many of the earlier surveys are scheduled to be revised and republished to provide detailed data more useful for current needs. Forty soil survey reports with soil maps are scheduled to be sent to the printer in the fiscal year 1959.

### Engineering Uses of Soil Surveys

The demand for soil surveys and for special interpretations of them for engineering purposes is increasing every year. More and more engineers are learning that soil survey information is often available about the suitability of different soils as foundation and construction material for highways, airports, large buildings and other structures. Soil survey maps delineate the many different soils and disclose site and soil conditions valuable in design and location of engineering work. Soil maps are being more widely used in selection of alternate sites resulting in lower construction and maintenance costs than ever before. They are valuable guides in locating satisfactory construction materials, particularly sand and gravel pits. Some of the other problems disclosed by soil maps are the need for stabilization of exposed slopes of cuts and fills, the installation of drainage systems, and for providing streambank protection.

Since World War II, soil maps and interpretations have been made for all branches of the Department of Defense to assist in the location, construction and maintenance of airports and other installations. Close cooperation has been maintained for several years with the Bureau of Public Roads in obtaining soils information and making engineering interpretations available to State highway engineers. In many States, also, Soil Conservation Service personnel have been providing consultation assistance directly to State highway agencies. On the other hand, more than 12 State highway agencies are now making soil tests in their laboratories and providing data for use in the engineering section of soil survey reports to be published. Some of the States using soil survey information wherever it is available are Iowa, Michigan, Nebraska, New Jersey, Oklahoma, Oregon, and Virginia. Recently, too, Service soil scientists have been providing soils data and consultation in connection with the layout and design of the Chantilly Airport in Virginia near Washington, D. C.

There is also an increasing demand for soils information for use in urban development and expansion. Such factors as the depth to bedrock may affect the cost of excavating basements and the installation of water, gas and sewer lines at the proper depth. The permeability and water relationships of different soils govern the satisfactory functioning of septic tanks and the possibility of wet or flooded cellars. An early understanding of these conditions may influence the choice of alternate sites or the installation of preventive measures. Federal and private lending agencies are making increasing use of soil maps as one factor in the feasibility of financing agricultural and many non-agricultural enterprises. Numerous other uses of the soil survey are also increasing the demand for maps and consultation throughout the country.

Number of Cooperators and Conservation Plans

Explanation	Active		Net Increase in
	District Cooperators		SCD cooperators
	Number	Acres	and basic plans
	<u>As of June 30, 1957</u>		<u>Fiscal Year 1957</u>
No. soil conservation district cooperators .....	1,727,682	515,302,750	83,616
SCD cooperators having basic plans .....	1,161,745	326,053,673	58,941
No. basic plans fully applied .....	190,562	39,603,486	12,635
	<u>As of June 30, 1958</u>		<u>Fiscal Year 1958</u>
No. soil conservation district cooperators .....	1,794,411	539,561,777	66,729
SCD cooperators having basic plans .....	1,218,433	345,388,583	56,688
No. basic plans fully applied .....	202,274	42,059,466	11,712
	<u>As of June 30, 1959 (Est.)</u>		<u>Fiscal Year 1959 (Est.)</u>
No. soil conservation district cooperators .....	1,852,000	555,600,000	57,589
SCD cooperators having basic plans .....	1,272,000	359,976,000	53,567
No. basic plans fully applied .....	216,000	44,928,000	13,726
	<u>As of June 30, 1960 (Est.)</u>		<u>Fiscal Year 1960 (Est.)</u>
No. soil conservation district cooperators .....	1,906,000	571,800,000	54,000
SCD cooperators having basic plans .....	1,324,000	374,692,000	52,000
No. basic plans fully applied .....	230,000	47,840,000	14,000

During the fiscal year 1958, a total of 116,303 additional farmers and ranchers became district cooperators, which increased the cumulative number of cooperators to 1,794,411, as of June 30, 1958. Changes in ownership, death, and cancellations caused a loss of 49,574 cooperators during the year, resulting in a net increase of 66,729 cumulative cooperators in 1958. Also, a total of 91,335 basic conservation plans were developed in 1958. However, losses during the year resulted in a net increase of only 56,688 basic plans as of June 30, 1958.



### Slide Rule Helpful in Selecting Practices

Research data on soil conservation, gathered by USDA scientists over the past 30 years, are now readily available for practical use by soil conservationists in the form of a simple "conservation slide rule" which makes possible fast and reliable soil-loss estimates right in the field. It was designed by a technician of the Soil Conservation Service, using information previously available to field staff only in tabular and chart form. With this new tool a trained conservation technician, familiar with the soils and climate of the area in which he is working and with the erosion allowance for each soil, can readily select the combinations of cropping systems and conservation practices that most economically meet the needs of a particular farm. Although the present slide rule is adapted only to the 9 Corn Belt States, research information is being assembled to make similar prediction methods available to soil conservationists in other parts of the country.

### Basic Conservation Planning in Soil Conservation Districts By States and Nationally, June 30, 1958

Of the 1,633,318,000 acres of total land area in the 2,806 conservation districts in the 49 States and in Hawaii, and the Caribbean Area as of June 30, 1958, about 1,223,752,000 acres were agricultural land on which the Service, in its cooperation with the districts, was authorized to work. This acreage consisted of about 4,722,000 operating farms and ranches, which is approximately 89 percent of the land in farms and 94 percent of the farms and ranches in the United States. As of June 30, 1958, the Soil Conservation Service was cooperating under formal agreement with 2,767 of the districts.

Basic conservation plans had been prepared with Service assistance on about 1,218,000 farms and ranches, comprising 345,388,000 acres of agricultural land as of June 30, 1958. This was about 26 percent of all the operating units in districts and 28 percent of the agricultural land in districts. Variations in these percentages by States and broad geographical areas are shown in the table on the following pages.

The Service's long-term objective recognizes that nationally there is a need for major revisions of basic conservation plans within a 10-year period to keep them up to date. Therefore, the annual workload on such revisions would be about 10 percent of the plans on hand at any given time. However, during fiscal years 1957 and 1958, the reported revisions each year were about one percent of the basic plans then on hand. With the increased age of districts and the basic plans prepared with cooperating farmers and ranchers, there will be a need for increased rate in the number of revisions made each year.





Basic Conservation Planning in Soil Conservation Districts  
By States and Nationally, June 30, 1958

States	Total SCD's as of 6/30/58		Agricultural Land in SCD's		Operating Units in SCD's		Basic Conservation Plans Prepared as of 6/30/58		% of Operating Units Planned		% of Agric. Land Planned	
	Number		Acres		Number		Number		%		%	
<b>Northeast</b>												
Connecticut	8		2,552,948		36,669		2,538	274,571	6.9		10.8	
Delaware	3		1,012,796		7,605		1,411	226,209	18.6		22.3	
Maine	15		15,506,924		30,300		5,745	1,190,467	19.0		7.7	
Maryland	23		4,695,752		32,283		10,481	1,504,374	32.5		32.0	
Massachusetts	15		1,930,714		22,882		5,555	583,914	24.3		30.2	
New Hampshire	10		5,563,345		31,391		3,797	642,791	12.1		11.6	
New Jersey	12		3,734,388		29,945		5,175	559,789	17.3		15.0	
New York	46		16,340,278		114,817		22,490	2,907,923	19.6		17.8	
Pennsylvania	48		10,732,393		103,370		16,426	1,893,059	15.9		17.6	
Rhode Island	3		485,000		3,392		902	106,835	26.6		22.0	
Vermont	13		5,389,273		36,855		5,391	1,044,683	14.6		19.4	
Virginia	29		21,182,031		134,012		31,099	5,158,088	23.2		24.4	
West Virginia	14		12,730,755		71,269		25,718	3,619,320	36.1		28.4	
<b>Total</b>	<b>239</b>		<b>101,856,597</b>		<b>654,790</b>		<b>136,728</b>	<b>19,712,023</b>	<b>20.9</b>		<b>19.4</b>	
<b>Southeast</b>												
Alabama	22		27,205,737		141,744		45,000	7,578,856	31.7		27.8	
Arkansas	76		29,416,350		118,675		53,093	10,901,841	35.7		37.1	
Florida	59		23,701,429		48,821		18,944	6,400,553	38.8		27.0	
Georgia	27		29,435,219		167,145		78,620	14,690,719	47.0		49.9	
Louisiana	26		26,247,783		107,172		25,466	5,569,262	23.8		21.2	
Mississippi	74		28,822,242		159,811		48,692	8,861,384	30.5		30.7	
North Carolina	37		20,500,772		285,325		67,558	6,924,690	23.7		33.8	
South Carolina	44		17,591,800		118,344		32,876	5,489,071	27.8		31.2	
Tennessee	92		20,721,897		176,303		27,992	3,913,830	15.9		18.9	
Caribbean	19		2,131,575		53,000		10,692	640,126	20.2		30.0	
<b>Total</b>	<b>476</b>		<b>225,774,804</b>		<b>1,406,340</b>		<b>408,933</b>	<b>70,970,332</b>	<b>29.1</b>		<b>31.4</b>	
<b>Corumbelt</b>												
Illinois	98		29,821,658		208,356		35,054	5,952,428	16.8		19.9	
Indiana	77		15,495,645		114,603		17,598	2,610,638	15.4		16.8	
Iowa	100		34,044,533		192,933		43,621	7,860,384	22.6		23.1	
Kentucky	121		24,029,944		208,569		45,842	5,361,825	22.0		22.3	
Michigan	75		25,089,473		192,140		18,856	2,381,341	9.8		9.5	
Minnesota	78		26,126,314		125,455		19,643	3,877,027	15.6		14.8	
Missouri	34		9,613,236		58,111		9,385	1,787,769	16.2		18.6	
Ohio	87		19,698,700		149,312		33,670	4,651,752	22.6		23.6	
Wisconsin	71		21,732,224		143,981		22,758	3,642,940	15.8		16.8	
<b>Total</b>	<b>741</b>		<b>205,651,727</b>		<b>1,393,460</b>		<b>246,427</b>	<b>38,126,104</b>	<b>17.7</b>		<b>18.5</b>	
<b>Great Plains</b>												
Colorado	97		29,371,501		38,921		12,034	10,717,768	30.9		36.5	
Kansas	105		50,167,148		131,385		58,568	17,965,038	44.6		35.8	
Montana	66		59,906,381		32,397		8,657	17,407,910	26.7		29.0	
Nebraska	87		47,922,976		108,061		40,175	13,547,066	37.2		28.3	
New Mexico	60		55,329,333		23,867		10,233	23,887,596	42.9		43.2	
North Dakota	77		42,463,096		61,445		22,658	13,980,949	36.9		32.9	
Oklahoma	87		39,187,162		146,783		72,097	18,058,584	49.1		46.1	
South Dakota	69		44,489,408		62,417		22,059	11,706,347	35.3		26.3	
Texas	173		155,367,091		353,829		115,735	62,798,996	32.7		40.4	
Wyoming	44		21,354,233		9,752		3,613	4,928,279	37.0		23.1	
<b>Total</b>	<b>865</b>		<b>545,556,329</b>		<b>968,857</b>		<b>365,829</b>	<b>194,998,533</b>	<b>37.8</b>		<b>35.7</b>	
<b>West</b>												
Arizona	49		22,496,094		9,288		3,486	2,600,918	37.5		11.6	
California	146		34,640,810		88,151		21,409	4,455,992	24.3		12.9	
Idaho	50		17,894,854		32,340		4,788	1,916,242	14.8		10.7	
Nevada	34		7,310,192		3,145		1,419	1,277,280	45.1		17.5	
Oregon	57		21,026,770		52,320		5,763	2,575,448	11.0		12.2	
Utah	48		13,485,902		25,078		7,778	4,598,562	31.0		34.1	
Washington	76		23,438,115		82,251		15,122	3,789,785	18.4		16.2	
Alaska	9		1,653,998		1,507		325	53,516	21.6		3.2	
Hawaii	16		2,963,945		4,407		426	313,848	9.7		10.6	
<b>Total</b>	<b>485</b>		<b>144,910,680</b>		<b>298,487</b>		<b>60,516</b>	<b>21,581,591</b>	<b>20.3</b>		<b>14.9</b>	
<b>National Total</b>	<b>2,806</b>		<b>1,223,752,137</b>		<b>4,721,934</b>		<b>1,218,433</b>	<b>345,388,583</b>	<b>25.8</b>		<b>28.2</b>	





Major Practices Applied on Farms and Ranches of  
Soil Conservation District Cooperators,  
ACP Participants, and Other Landowners Assisted  
Within Soil Conservation Districts

Type of Practices	Unit	1958 Actual	1959 Estimate	1960 Estimate
Contour farming .....	Acres	2,296,854	2,200,000	2,150,000
Cover cropping .....	Acres	4,144,611	4,200,000	4,250,000
Stripcropping .....	Acres	768,881	770,000	780,000
Stubble mulching .....	Acres	3,180,221	3,400,000	3,500,000
Proper range use .....	Acres	36,391,548	38,000,000	39,500,000
Pasture planting .....	Acres	2,983,566	3,100,000	3,200,000
Range seeding .....	Acres	1,295,432	1,450,000	1,600,000
Tree planting .....	Acres	752,113	850,000	1,000,000
Windbreak planting .....	Miles	2,383	2,750	3,000
Wildlife area improvement .....	Acres	488,568	500,000	510,000
Terracing .....	Miles	40,986	39,000	38,000
Diversion construction .....	Miles	4,878	5,000	5,200
Pond construction .....	Number	63,060	70,000	71,000
Waterway development .....	Acres	61,866	64,000	66,000
Irrigation reservoirs .....	Number	3,285	3,200	3,200
Sprinkler irrigation systems .....	Number	3,900	3,600	3,500
Improved water application .....	Acres	1,290,598	1,250,000	1,200,000
Irrigation water management .....	Acres	661,558	663,000	665,000
Land leveling .....	Acres	460,066	500,000	520,000
Farm drainage .....	Acres	1,442,564	1,450,000	1,460,000
Open drains .....	Miles	15,701	16,000	16,000
Closed drains .....	Miles	22,597	23,500	24,000
Land clearing .....	Acres	499,771	490,000	485,000

More than a hundred different practices and measures are used in the local programs of conservation districts varying from place to place according to different needs of the land. The above listed practices represent those most commonly used throughout the country.

These data for 1958 and the estimates for 1959 and 1960 include quantities of the listed practices applied with Soil Conservation Service technical assistance in soil conservation districts. Such assistance is financed mainly with "Conservation Operations" funds; partly with funds reimbursed from the item "Agricultural Conservation Program" under the 5% transfer provision contained in the annual appropriation act; partly with "Great Plains Conservation Program" and "Conservation Reserve Program" funds, and a small part from various non-Federal sources.

### Rotation-Deferred Grazing a Key Range Practice

Many ranchers in the Far West bunchgrass country are making outstanding improvements in range conditions through the application of rotation-deferred systems of grazing. Most of these ranchers have been actively cooperating with their local soil conservation districts for 10 years or more and have made effective use of the technical assistance provided by Service technicians assigned to their districts. These outstanding improvements in range conditions were made possible through the application of a complete coordinated soil and water conservation program for the entire ranch holdings.

A recent report from a rancher in Douglas County, Washington, cooperating with the East Wenatchee Soil Conservation District, illustrates the kinds of range improvements made over a 10-year period. A range condition inventory was made by Service technicians on this cooperator's farm in 1947. Of his 9,815 acres of rangeland it was found that 107 acres were in excellent condition, 2,499 acres in good condition, 2,106 acres in fair condition, and 5,103 acres in poor condition. The rancher and the Service technician discussed the causes of range deterioration and the combinations of practices needed to be applied to begin improvement on the various pastures. The conservation plan finally adopted by the rancher included new fencing so that proper range use and rotation-deferred grazing might be accomplished. The plan also provided for the development of new water supplies, and range seeding. A reappraisal of the condition of the range ten years later showed a 300% improvement with 346 acres of range in excellent condition, 6,694 acres in good condition, 748 acres in fair condition, and only 797 acres still in poor condition.

### Terraces Reduce Runoff and Erosion

Heavy rains in many States during the summer of 1958 caused much erosion and flood damage. There was adequate opportunity in many places to observe at first hand the beneficial effects of soil and water conservation measures. A good example is found in Audubon County and David's Creek Watershed area of Guthrie County, Iowa, which suffered damages estimated at 2 1/4 million dollars following the cloudburst and floods of July 1 and 2, 1958. Soil Conservation Service technicians, who made the estimates, studied the effectiveness of all conservation practices in withstanding storm and flood and found that the practices did a good job in reducing the amount of damage. Commissioners of the Audubon Soil Conservation District and farmers with complete conservation plans in use on their land estimated that damage on unprotected farmland was 4 to 7 times greater than on protected land.



Contour cultivation alone was found quite effective, with soil loss on land farmed up and down the hill  $3\frac{1}{2}$  times what it was where crops were on the contour. Terraces were very effective in controlling erosion. Very little soil actually left terraced fields. There was some movement between terraces but most of it was deposited in terrace channels. Terracing was found to be twice as effective as contouring alone insofar as erosion damages were concerned. There was only one-seventh of the soil loss on terraced land compared with soil loss on farmland in row crops farmed up and down the slope.

#### Western Range Practices Adapted to the South

Ranchers who are cooperating with soil conservation districts in the Southeastern States are gaining a fuller understanding of the different kinds of range sites and their condition. With the help of Service technicians they are planning and applying range improvement practices which will more fully develop their rangelands toward their potential productivity. Proper grazing use and management of native range and woodland range areas is the permanent need on millions of acres of such lands. Modern range conservation practices adapted to Southern range sites assure conservation of the soil, water, and plant resources while bringing the greatest long-time returns to the operators. Proper grazing practices on Southern woodland range areas not only provide for proper forage management but also encourage the establishment and proper growth of desirable trees.

The South is using the more common Western range management practices of proper degree of use, proper season of use, proper class of livestock, and uniform use of rangelands. Also, chemical and mechanical control of brush and other undesirable plants is being used to increase forage production. Supplemental feeding of protein and minerals to livestock is being practiced to meet native forage deficiency, to encourage proper use of the range forage, and to make economical production of livestock possible. Among the new practices developed for Southern ranges are cattle walkways or earthen levees for livestock trails, bedgrounds, and overall management on low rangelands subject to inundation, and seeded and fertilized firebreaks on some types of range where native species soon form an unmanageable rough stand which becomes a fire hazard.

#### Conservation Increases Wildlife

Soil and water conservation programs on the farms and ranches of the United States have greatly improved wildlife habitat and thus have helped increase most of the beneficial species of wildlife. The improvement of



wildlife conditions has become a normal part of a complete program of soil and water conservation on thousands of farms and ranches. As an integral part of a long range plan of good land use a farmer or rancher adjusts his operations according to the capabilities of the land for protection and improvement. In reaching planning decisions due consideration is given to the selection, treatment and management of areas for wildlife improvement as well as for the production of crops, pasture, and woodland on the individual farm or ranch.

As a part of such a plan, farm ponds may be built primarily for irrigation or stockwater but may likewise be used and managed for fishponds and as habitats for migratory waterfowl and other wildlife. Farmers and ranchers have constructed nearly 2 million farm ponds in the last 20 years, most of them beneficial to wildlife and many used for recreation. In planning for drainage of wetlands and potholes due consideration is being given to the effects on wildlife. As an example, one farmer cooperating with the Seneca County Soil Conservation District in Ohio decided after consultation with soil conservationists not to drain a large pothole on his farm but to improve and manage it for wildlife. As a result the area is now a flourishing habitat for fish and provides an excellent resting ground and cover for waterfowl and other wildlife. Another example is a new practice being tried in Arkansas rice fields. Between crops of rice the impoundments are kept flooded for fish production and also managed to support migratory waterfowl.

In addition to the incidental wildlife value of farm ponds, farmers are now creating water and marsh areas specifically for wildlife habitat. In New York State landowners are creating shallow water marsh areas which are proving to be valuable nesting grounds for ducks. In the South Carolina coastal area farmers have made shallow impoundments of brackish water and seeded various duck food plants to encourage waterfowl habitation during the winter months. In the Great Plains the proper selection of trees and shrubs has further increased the wildlife value of windbreaks which were formerly planted for farmstead protection against the winds alone. These windbreaks are now providing a habitat for birds, squirrels, and even deer, miles from where they could formerly have existed. In the Eastern States closely spaced plantings of multiflora rose serve as living fences and as habitats for rabbits, foxes, and birds. In the Southeastern States plantings of lespedeza bicolor have proven to be a favorite quail food resulting in an increase of the bobwhite population in many areas. The above examples are but a few of the many being carried out by farmers and ranchers to create wildlife habitat and increase wildlife through the application of complete soil and water conservation programs.

Group Jobs on Which Technical Assistance Provided

Items	: 1958 : Actual	: Total as of : 6/30/58	: 1959 : Estimate	: 1960 : Estimate
Watershed group jobs	:	:	:	:
Number .....	: 91	: 407	: 70	: 60
Acres .....	: 3,934,177	: 14,350,386	: 3,026,300	: 2,594,000
Group drainage jobs	:	:	:	:
Number .....	: 2,467	: 16,564	: 2,500	: 2,500
Acres .....	: 2,370,239	: 11,721,703	: 2,400,000	: 2,400,000
Group irrigation jobs	:	:	:	:
Number .....	: 1,049	: 2,889	: 1,025	: 1,025
Acres .....	: 2,047,560	: 4,048,787	: 2,000,000	: 2,000,000

Assistance on group jobs for erosion control, water management, drainage, and irrigation has continued at a high rate for several years. Such work is undertaken as a normal part of assistance rendered by the Service to soil conservation districts with Conservation Operations funds.

Major Practices Applied on Group Jobs

Type of Practice	: Unit	: 1958 : Actual	: 1959 : Estimate	: 1960 : Estimate
Ditch and canal excavation ..	(: Miles	: 1,133	: 1,060	: 1,060
	(: Cu. Yds.	: 9,646,598	: 9,025,000	: 9,025,000
Spoilbank leveling .....	: Cu. Yds.	: 3,926,455	: 3,500,000	: 3,300,000
Channel improvement .....	: Lin. Ft.	: 104,880	: 80,000	: 70,000

Progress on Conservation Needs Inventory

The National Inventory of Soil and Water Conservation Needs is progressing on schedule. Field collection of basic data about soil and land use on sample areas by Service personnel had been completed in 1,200 of the Nation's 3,070 counties by June 30, 1958. The field work was partially done in the remaining counties and is scheduled for completion during the 1959 fiscal year. As of June 30, 1958, basic data had been processed for about 1,000 counties. These data will be used by county conservation needs committees in making local estimates. Estimates of the nature, location and extent of our country's soil, water, and plant resource problems and conservation treatment needs will be developed from the sample areas by statistical methods. Review of estimates by State Committees is to be completed in all States by January 1, 1960. County, State and Territorial, and other area summaries will be prepared. The State and National summaries will be completed in the latter part of that year, and available in 1961.



One phase of the inventory will provide the total acreage of each land use in the country, the type and acreage of conservation and management problems in each land use category, and the acreage needing conservation treatment. Data will be gathered and compiled for all privately-owned, State, Indian, and other non-Federal land and for cropland.

The second phase will be an inventory of small watersheds to determine the nature and scope of water management problems that if met would require watershed projects of a type and size that qualify for assistance under Public Law 566, 83rd Congress, as amended. The watershed project inventory will be made for the entire country without regard to land ownership.

Eight agencies of the Department of Agriculture and other Federal, State and local organizations are participating in development of the inventory. When completed, it will provide land and water resource data not now available, and is expected to be widely useful to Federal, State and local agencies, and private interests for efficient programming, research, administration and legislation affecting soil and water resources.

#### Snow Surveys and Water Supply Forecasting

Snow surveys of more than 1,000 snow courses in the Western United States were made to provide basic data for 1,345 water supply forecasts during the 1957-58 season. Approximately 30,000 copies of 44 water supply reports were published as a service to some 382 soil conservation districts and to water users throughout the West. Analyses of the water supply data as they affect individual district and watershed areas are important features of a new format of the reports being issued in Nevada, Colorado and Oregon. This provides more useful information to soil conservation districts and local water users. State bulletins summarize the separate district and area reports and are distributed to those concerned with water problems at this level. This type of report will be used in other States next year in view of the excellent acceptance of the new format in these three States.

Snow survey data and water supply forecasts were made available through regional, State and local newspapers, farm and national magazines, as well as regular Soil Conservation Service bulletins. All of these media provided information useful to farmers and ranchers in preparing cropping plans based on the forecast of seasonal water supplies. These data were also used by power companies, Federal agencies and other water users to anticipate streamflow stages, regulate water storage and adjust their operations.

The benefits of snow surveys and water supply forecasting to agriculture, water users and to others subject to flood damages were again demonstrated in the Columbia River Basin. The release of stored water in reservoirs



throughout the Columbia River Basin can have a major influence on flood-water flows. Soil Conservation Service snow surveys or more than 350 snow courses and the operation of a comprehensive system of stream gauging installations by the Geological Survey provide basic data for the runoff and flood-flow forecasts projected by the Weather Bureau. Forecasts are used by a Columbia River Water Management Committee whose members operate reservoirs throughout the river basin. Flood damages estimated at \$52,000,000 have been prevented during the first seven years of this organized action. Preliminary information indicates damage prevention in 1958 estimated at about \$3,000,000. Maximum benefits occurred during 1956 when the flood control operations reduced the peak flow at The Dalles, Oregon by 102,000 cubic feet per second, corresponding to a stage reduction of 2.4 feet at Vancouver, Washington and with a credit for damage prevention of \$37,671,000 throughout the basin.

During the 1958 fiscal year, cooperation with the Water Rights Branch, Department of Lands and Forests of British Columbia, Canada, was strengthened and formalized to enable better water utilization in the Columbia Basin. Canadian representatives have cooperated in snow survey and water supply forecasting for the past 23 years.

Also, during the 1958 fiscal year, two additional snow courses were established in Alaska in response to the increased importance of water resources in the area. Three base shortwave radio stations were installed in Utah to provide communication with over-snow machines used in snow surveys and as a safety measure in case of emergency. Safety training for winter snow survey operations was emphasized. Medical certificates of fitness were required of snow survey personnel.

#### Water Conservation Program Effectiveness Demonstrated in Texas

Rains that broke the drought in the spring of 1957 in the Southern Great Plains proved again that the establishment of soil and water conservation practices helps farmers and ranchers equalize the effects of climatic extremes. Although farmers in May and June found their fields too wet to harvest grain or cultivate row crops, by midsummer some crops and pastures were parched and brown while on adjacent farms plants were lush and green. Conservation treatment on the land made the difference. The fields and pastures that were protected by good vegetative cover and other conservation practices when the rains came absorbed a large amount of moisture. Bare land or land unprotected by conservation practices shed most of the rainfall into the streams and rivers helping create a series of damaging floods.

Soil conservationists in drought-conscious Texas made borings at over a hundred locations to document the story. They consistently found the soil wet to far greater depths in fields and pastures that had good cover or other protection than where the soil was bare or untreated. They found that

on the average insoak was twice as great on the protected land as compared to unprotected. Cropland or grassland with good cover or conservation treatment was wet to the full depth of the normal root zone wherever enough rain had fallen to wet dry soil to that depth. In contrast, bare or unprotected land was still dry in the lower root zone and crops and grass soon suffered when the rains stopped.

These observations help to explain why farmers and ranchers who are carrying out a good conservation program go through periods of drought with less distress than others. Their fields and pastures go into dry periods with more reserves of moisture stored in the soil for plant use. They also help explain how conservation treatment and small dams installed in 25 Texas watersheds reduced flood damages by an estimated million dollars during the excessive rainstorms. In addition to the floodwater detained by the dams, each foot of dry soil made wet by insoak had stored from 1 to 3 inches of rainfall instead of permitting it to runoff and add to the flood hazard. Even more important to the landowners, the added moisture held by the soil helped them to grow crops, forage, and other vegetation during the rainless weeks that followed.

#### Urban Spread Increases Problems

The Soil Conservation Service has focused its technical assistance on soil and water conservation problems primarily on the land in farms and ranches in soil conservation districts. Most erosion, sediment, and flood problems begin and must be attacked there. There are, however, new and increasing demands being made upon the time of Service technicians. For example, "Rurbanization", or the spread of industrial and urban developments around the big population centers, and part-time farming, are creating new problems and demands for technical assistance in soil, plant, and water management. City people, such as professional men, business executives, and industrial workers, have moved to the country and country people have taken part-time jobs in the city. The land in the fringe areas around large cities is occupied by both. Industrial and housing developments, and full, part-time or "hobby" farms exist side by side. All of these people and interests are demanding and are being given some technical assistance with their soil and water management problems, many of which were created as a result of "rurbanization".

The "rurbanization" problem is not confined to a small area but is nationwide. Most of the land from Boston to Washington, D. C. is already "rurban" in use. It is rapidly approaching this condition in the Hudson-Mohawk region of New York; in the Pittsburgh area of Pennsylvania; in parts of the Ohio Valley; along the south side of Lake Erie through parts of Michigan and Illinois and up the west shores of Lake Michigan into Wisconsin; in the Seattle-Tacoma area of Washington; in the Los Angeles and San Francisco Bay sectors of California; in the southeastern Piedmont; and along the



Gulf Coast. In between the major belts, "rurbanization" problems exist to a lesser degree around population centers such as Dallas and Fort Worth, Texas; Wichita, Kansas; Denver and Colorado Springs, Colorado; Springfield, Illinois; Ottumwa, Iowa; Council Bluffs, Iowa; and Omaha, Nebraska; and many others.

A State by State survey shows that during the 15-year period from 1942 through 1956 approximately 17 million acres of our flattest and most fertile lands have been converted from agricultural use to urban subdivisions, industrial sites, highways, defense establishments and airports. Such land use conversions create or are associated with many new land use and water management problems, including reduction in water supplies, increased flood hazards, pollution of streams, sedimentation, and erosion damage.

A special study made in fiscal year 1958 shows that in an increasing number of soil conservation districts a high percentage of the requests for technical assistance are coming from "rurbanites". This varied from about 10% to 80% of the total requests in the districts studied in 12 populous States across the country. Farm ponds, reforestation, and pasture improvement proved to be popular conservation practices with the part-time farmer and non-farming land occupant.

While the type and complexity of the problems on which "rurbanites" request technical assistance varies widely, a few specific examples will serve to illustrate the problem. Small part-time berry growers near Portland, Oregon, need help in planning irrigation systems. In the "rurban" area near Tulsa, Oklahoma, there are many small part-time cattle growers on land formerly in cotton who want appropriate grass mixtures, fertility and management recommendations for small pastures. In Massachusetts, schools have frequently requested assistance in solving drainage and runoff problems on school grounds. Town engineers have requested assistance in the determination of watershed runoff for proper design of culverts. Planning board engineers want soils information to guide them in setting up regulations for house spacing in cesspool drainage areas. All districts in Massachusetts have received numerous requests for assistance on erosion, drainage, and runoff problems on summer residential and recreation sites.

#### Current Plant Materials Activity

The widespread use of many of the conservation practices needed to solve land use and soil and water control problems is dependent upon the availability to the landowners and operators of appropriate plant materials. New problems arise constantly in connection with the installation of vegetative erosion and water control measures which require new or adapted conservation plant materials or cultural practices. Potentially promising plant materials are located and established in seed increase plots at seventeen strategically located plant materials centers. At these centers and in field-scale trial plantings on the farms and ranches of soil conservation district cooperators these plant materials are tested under different cultural and management practices. These plantings are observed



and evaluated to determine their effectiveness in soil and water conservation work and usefulness as crops under varying soil, moisture, and climatic conditions. Finally, small amounts of seed are made available to seed growers, usually in cooperation with State seed improvement associations, for seed increase and large-scale production and distribution through regular commercial channels.

### Plant Materials Centers

The plant materials work of the Service is conducted cooperatively with State and Federal agencies. Seventeen plant materials centers are located in agricultural areas where they will best serve the needs of the conservation program. Eight of the centers are operated under cooperative agreements by qualified State agencies and nine are operated by the Service. Five of these centers were established during 1958. They are located in Arcadia, Florida, where plants will be tested under tropical and sub-tropical conditions in the States and the Caribbean Islands; at Lansing, Michigan for northern cornbelt conditions; at Los Lunas, New Mexico for the arid southwest; at Corvallis, Oregon for several special conservation problems in the northwest; and at Maui Island, Hawaii for the soil and climatic conditions peculiar to the Hawaiian Islands. Production of planting materials for testing was underway at all of these new centers during the 1958 cropping season. A limited amount of development work will be required to complete planned installations and enable operation of the new centers to meet program needs.

The location and operation of the plant materials centers is described in the following table:

<u>Location of Center</u>	<u>Operated By</u>
Tucson, Arizona	Arizona State Agricultural Experiment Station
Pleasanton, California	Soil Conservation Service
Americus, Georgia	University of Georgia
Aberdeen, Idaho	Soil Conservation Service
Manhattan, Kansas	Kansas State College
Elsberry, Missouri	Soil Conservation Service
Big Flats, New York	Alfred University
Scottsbluff, Nebraska	Nebraska State Agricultural Experiment Station
Bismarck, North Dakota	North Dakota Association of Soil Conservation Districts
Spur, Texas	Texas State Agricultural Experiment Station
Pullman, Washington	Soil Conservation Service
Beltsville, Maryland	Soil Conservation Service (as national plant materials center)
Arcadia, Florida	Soil Conservation Service
Lansing, Michigan	Soil Conservation Service
Los Lunas, New Mexico	New Mexico Agricultural Experiment Station
Corvallis, Oregon	Soil Conservation Service
Maui Island, Hawaii	Soil Conservation Service

Current Activities at the National Plant Materials Center

While the principal objective of the National Plant Materials Center at Beltsville, Maryland, is the same as the other 16 plant materials centers, that of developing new plant materials or new conservation uses for old plant materials, this unit functions somewhat differently than the other units. The National Center, in essence, is a service unit catering to the desires and needs of the other centers. New materials are acquired, increased, and sent to plant materials centers where the climate approximates the native habitat.

During the fiscal year 1958 the center handled 524 new species and varieties of plant materials. Among these were plant materials from domestic source and from foreign countries all over the world, Argentina, Australia, New Zealand, Japan, Italy, Canada, and Israel, to name a few. Many of these plant materials were increased and distributed. Others are still under observation and initial seed increase.

In addition to general acquisition of plant materials from all sources, specific requests are handled from field plant materials technicians. For example, breeders' seed of S-143 orchard grass was secured from the Welch Plant Breeding Station at Aberystwyth, Wales, for the Pacific Northwest. A collection of ecotypes of *Hyparrhenia hirta* was secured from South Africa for trial in Hawaii. Also, special inoculants are secured for uncommon legumes for the field plant materials technicians.

The National Center also secures correct identification for the plant materials handled there and at the other centers. During fiscal year 1958 the Smithsonian Institute and other botanists assisted in correctly identifying 166 herbarium specimens.

The Center maintains a live herbarium of all the plant materials that have survived the rigorous testing program and gone into conservation use for the benefit of a large number of interested visitors to the Center.

In addition to the plantings for initial seed increase of new plant materials, the National Center also produces a few select species or varieties and conducts cultural trials. One of the most important undertakings during the fiscal year 1958 was the entire production of a prospective borer-resistant strain of black locust by root cuttings for the cooperative clonal tests. These tests are to include ease of propagation, rapidity of development, climatic adaptation, and resistance to locust borer damage. The latter is cooperative with the Forest Service.

Among the more important observational projects underway in the fiscal year 1958 at the Center were plantings for wildlife habitat improvement north of the present usage line, for erosion control problems in rural-urban areas, and for riverbank and shore erosion control.





(b) Watershed Protection

Appropriation Act, 1959, and base for 1960 .....	\$25,500,000
Budget Estimate, 1960 .....	20,000,000
Decrease .....	<u>-5,500,000</u>

Note: Although a decrease of \$5,500,000 is proposed in the appropriation for 1960, total obligations will decrease only \$2,295,833 below those estimated for the fiscal year 1959 due to the availability of previous year's balances. Total obligations in 1960 are estimated at \$30,000,000 compared with obligations of \$32,295,833 in the fiscal year 1959.

SUMMARY OF DECREASES, 1960  
(On basis of available funds)

Decrease in project investigations and development of watershed work plans .....	-400,000
Decrease in the Federal share of the cost of installing planned works of improvement in Pilot watersheds .....	-1,895,833

PROJECT STATEMENT  
(On basis of available funds)

Project	1958	1959 (estimated)	Increase or Decrease	1960 (estimated)
1. Investigations and planning .....	\$4,545,854	\$4,700,000	-\$400,000(1)	\$4,300,000
2. Installation of works of improvement:				
(a) "Pilot" demonstration watersheds ....	4,197,072	6,395,833	-1,895,833(2)	4,500,000
(b) Watersheds authorized under P.L. 566	6,337,257	19,200,000	- -	19,200,000
3. Loans and related expense .....	11,405	1,000,000	- -	1,000,000
4. Surveys and investigations of water resources programs ...	762,361	1,000,000	- -	1,000,000
Total pay act costs (P.L. 85-462) .....	[268,058]	[783,900]	[+35,000]	[818,900]
Total obligations or estimate .....	15,853,949	32,295,833	-2,295,833	30,000,000
Unobligated balance brought forward .....	-7,149,782	-16,795,833	+6,795,833	-10,000,000
Unobligated balance carried forward .....	16,795,833	10,000,000	-10,000,000	- -
Total appropriation or estimate .....	25,500,000	25,500,000	-5,500,000	20,000,000

# DECREASES

A total decrease of \$2,295,833 for the watershed protection and flood prevention work as follows:

- (1) A decrease of \$400,000 in the cost of project investigations and development of watershed work plans.

A reduction in the rate of watershed work plan development would be made to achieve a closer balance with the proposed schedule for initiating installation of structural measures in about 40 new watershed projects in the fiscal year 1960.

The following table shows the number of project applications received through June 30, 1958 and estimated for 1959 and 1960, the progress made and schedules for planning of projects authorized under Public Law 566, 83rd Congress:

Item	: 1955-57	: 1958	: 1959	: 1960	: Total
	:	:	: (Est.)	: (Est.)	: 1955-60
	:	:	:	:	: (Est.)
Applications received .....	: 712	: 175	: 225	: 225	: 1,337
Watersheds approved	:	:	:	:	:
for planning .....	: 268	: 96	: 90	: 66	: 520
Watershed plans prepared .....	: 91	: 55	: 100	: 70	: 316
Planning suspended or project	:	:	:	:	:
not suitable for develop-	:	:	:	:	:
ment of plans .....	: 319	: 52	: 25	: 21	: 417
	:	:	:	:	:

As the rate of planning is reduced, some positions vacated due to turnover of personnel would not be filled, and technicians, engineers and aids now engaged in watershed planning activities would be reassigned to installation of works of improvement and other activities of the Service.

- (2) A decrease of \$1,895,833 in the Federal share of the cost of installing planned works of improvement in Pilot watersheds.

The budget for 1960 proposes a reduction in the amount of \$1,895,833 from the level of operations to be carried on in Pilot watershed projects during 1959. Installation of works of improvement is scheduled for completion in 11 of the 32 currently active pilot projects during the 1959 fiscal year. The reduced budget estimate would provide all of the funds that would be needed to continue planned work on the other 21 watersheds during the 1960 fiscal year. Installation of works of improvement in 9 more pilot watersheds is now scheduled for completion in 1960. It is now estimated that it will be necessary to extend the planned installation period in some of the remaining larger pilot watersheds beyond 1961.

The budget for 1960 would permit the installation of works of improvement in P.L. 566 watershed projects, loans, and surveys and investigations of water resources programs at the same level as for the fiscal year 1959. A full discussion of these activities as currently programmed for fiscal 1959 and 1960 is found in the immediately following "Status of Program" section.

## STATUS OF PROGRAM

### Current Activities:

The Watershed Protection and Flood Prevention Act (Public Law 566, 83rd Congress), as amended, (16 USC 1001-1007), provides for cooperation between the Federal Government and the States and their political Subdivisions in a program to prevent erosion, floodwater, and sediment damages in the watersheds of rivers and streams and to further the conservation, development, utilization, and disposal of water. The work of the Department under this item consists of the following:

1. Investigations and surveys of proposed small watershed projects upon application by local sponsoring organizations and collaboration with them in the preparation of project work plans. These plans outline the proposed works of improvement to be installed and include the estimated costs, a cost-benefit analysis, cost-sharing and maintenance arrangements, a proposed schedule of operations, and other facts needed to determine whether Federal participation in the cooperative project should be approved. Easements and rights-of-way are not obtained in the preparation of project work plans, but are considered as a responsibility of local organizations as discussed in item 2 below.
2. Participation in the installation of works of improvement in approved watershed projects. Detailed construction plans and specifications are prepared for specific flood prevention and agricultural water management features of the project. The Federal Government bears all of the construction cost of the flood prevention and related features except easements and rights-of-way, and an equitable part of the cost of construction of the agricultural water management features. Local organizations must pay all other costs. Funds are provided to local organizations for the Federal share of the cost of contracts they award for installation of works of improvement on other than Federal lands. The Federal agencies do this work on Federal lands which they administer with appropriate contributions being made by the local people who receive benefits. Engineering supervision is provided over flood prevention and agricultural water management construction work, either directly by the Federal Government or by advancement of funds to local organizations for employment of engineers. Technical assistance is provided to accelerate the planning and application of land treatment measures in the watersheds to prevent erosion and protect the structural works of improvement from flood and sediment damage.
3. Installation on a cost-sharing basis, of improvement measures on 32 currently active "pilot" watersheds which were initially authorized by the Congress to serve as demonstrations of the effectiveness of complete watershed treatment in preventing erosion and reducing floodwater and sediment damage.



4. Program evaluation studies in selected watershed protection projects to determine the effectiveness of structural and land treatment measures installed.
5. Surveys and investigations of the watersheds of rivers and other waterways in cooperation with other Federal, State and local agencies, as the basis for the development of coordinated inter-agency water resources programs.
6. The making of loans to local organizations to finance the local share of the costs of carrying out works of improvement for flood prevention and for the conservation, development, utilization, and disposal of water.

#### Program Assignments

The Soil Conservation Service has general responsibility for administration of the work of the Department authorized under the Watershed Protection and Flood Prevention Act and for the formulation of guiding principles and procedures. It assists local organizations with (a) the development of watershed work plans and (b) the application of land treatment measures and the installation of structural works of improvement on non-Federal land in authorized watersheds. Some works are also installed on Federal lands by arrangement with the administering agency. It also makes surveys and investigations of the watersheds of rivers and waterways and cooperates with other agencies in the planning, development, and coordination of works and programs.

The Forest Service participates in the development of watershed work plans and in the installation of watershed improvement measures. It concerns itself with (a) all national forest and other lands in the authorized watersheds that are administered by the Forest Service, and (b) certain specialized technical assistance on other forest lands in the watersheds. It also provides specialized assistance in forestry aspects of coordinated river basin programs.

The Bureau of Land Management and the Bureau of Indian Affairs participate in the planning and installation of works of improvement on lands under their jurisdiction. The Agricultural Research Service assists with the development of criteria to be used in the economic evaluation of work plans and measures installed in small watershed projects. It also makes special economic analyses of specific watershed projects and of river basin resource development proposals. The Farmers Home Administration has responsibility for administration of Section 8 of the Act relating to loans to local organizations.

Funds are made available from this appropriation to the U. S. Weather Bureau and the U. S. Geological Survey, either by transfer or reimbursement, for precipitation and runoff data needed in watershed program evaluation, planning, and design work.

Examples of Recent Progress:

INVESTIGATIONS AND PLANNING

Agency Participation

Allocations of funds to the cooperating agencies for 1958 and 1959 and proposed for 1960 for investigations and planning watershed protection projects are as follows:

Agency	: 1958 : : Obligations :	: 1959 : : Estimate :	: 1960 : : Estimate :
Soil Conservation Service <sup>1/</sup> .....	\$4,152,851	\$4,296,661	\$3,951,500
Forest Service .....	312,826	360,000	313,000
Agricultural Research Service ...:	17,962	30,000	24,600
U. S. Geological Survey .....	62,215	13,339	10,900
Total .....	4,545,854	4,700,000	4,300,000

<sup>1/</sup> Amounts include approximately \$80,000 each year for reimbursable work performed by the U. S. Weather Bureau.

Development of Watershed Work Plans

Local interest continues to grow in small watershed projects. During the 1958 fiscal year 175 new applications for watershed project assistance were received by the Soil Conservation Service from local sponsors, bringing to 887 the total received as of June 30, 1958. These applications cover 69,145,600 acres of watershed lands in 47 States and Territories. The Administrator, SCS, approved 96 additional applications for work plan development during the 1958 fiscal year. As of June 30, 1958 a total of 364 applications for 27,215,500 acres of watershed lands had been approved for work plan development. A total of 146 watershed work plans had been developed by the end of the fiscal year 1958. As of December 12, 1958 an additional 121 new applications had been received in the fiscal year 1959.

No watershed planning work had been done by June 30, 1958 on 523 of the applications from local organizations in 40 States and Hawaii. It is estimated that about 300 of these watersheds are not suitable for the development of plans under P. L. 566 and that 223 will qualify for assistance. It is not possible to provide watershed planning assistance immediately to all local organizations submitting applications. Local sponsors in Texas, Oklahoma, Arkansas and Kentucky have furnished funds to supplement and accelerate watershed planning. The California Division



of Soil Conservation has established two watershed planning parties. Interested agencies in at least three other States are considering similar action. No commitments are made that Federal funds for the installation of works of improvement will be increased in these States, as a result of the additional watershed work plans prepared by the State or local sponsors, beyond their equitable share of available funds. The following table shows the status of project application and planning under Public Law 566 as of June 30, 1958 and estimate for 1959 and 1960.

(Cumulative)

<u>Item</u>	<u>Fiscal Year</u>				
	<u>1956</u> <u>Actual</u>	<u>1957</u> <u>Actual</u>	<u>1958</u> <u>Actual</u>	<u>1959</u> <u>Estimate</u>	<u>1960</u> <u>Estimate</u>
Applications for watershed projects:					
Received current year.....	194	165	175	225	225
Cumulative total.....	547	712	887	1,112	1,337
Watersheds approved for planning....	172	268	364	454	520
Watershed work plans prepared, pending final approval (end of year).	19	49	46	46	56
Watershed work plans:					
(a) Approved for advance engineering and technical assistance.....	13	23	53	93	113
(b) Approved for construction of structural measures....	-	19	45	100	132
(c) Planned treatment installed.	-	-	2	7	15
Planning suspended.....	10	39	71	81	87
Planning in process (end of year).	130	138	147	127	117
Balance:					
To be planned.....	175	164	223	343	487
Not now suitable for development of plans.....	200	280	300	315	330

Watershed planning assistance had been authorized in 47 States by June 30, 1958. Planning parties have been approved for 42 States and planning personnel assigned to the other States and Hawaii on a part-time basis in accordance with their planning workload. The U. S. Forest Service has assigned personnel to work with the watershed planning parties in those locations where the forestry program of the watershed requires such planning assistance.

#### Planning Process Streamlined

Early in the 1958 fiscal year the Soil Conservation Service took several important steps to reduce the elapsed time from the beginning to the completion of watershed work plans. Technical and administrative procedures were streamlined and simplified and all practical means of assisting and encouraging local organizations to move ahead with minimum delay and restrictions were explored. Field staffs have been encouraged to develop closer working relationships with local sponsors during the planning stages to facilitate securing easements, administering contracts, etc., later in the operation stages of the projects.



Authority was also delegated to State Conservationists of the Soil Conservation Service to authorize Federal assistance in the installation of works of improvement for those watersheds which are not of the size and cost that require Congressional approval of the watershed work plan, and to increase or decrease the estimated total Federal contribution to a project within certain specified limits. The use of private engineering and soils testing concerns is also being encourage wherever it will speed up planning work.

# INSTALLATION OF WORKS OF IMPROVEMENT

## Agency Participation

Allocation of funds to the cooperating agencies of the Department of Agriculture and the Department of Interior for 1958 and 1959 and proposed for 1960 for works of improvement on Watershed Protection projects are as follows:

Agency	1958 Obligations	1959 Estimate	1960 Estimate
Soil Conservation Service			
Pilot Watersheds .....	\$3,901,706	\$6,240,655	\$4,406,800
P.L. 566 Watersheds .....	6,118,633	18,694,699	18,709,937
Forest Service			
Pilot Watersheds .....	252,315	116,705	55,000
P.L. 566 Watersheds .....	130,246	375,699	375,000
Agricultural Research Service			
Pilot Watersheds .....	43,051	38,473	38,200
P.L. 566 Watersheds .....	25,741	31,663	37,336
Bureau of Land Management			
P.L. 566 Watersheds .....	23,441	15,549	2,140
Bureau of Indian Affairs			
P.L. 566 Watersheds .....	2,843	6,492	5,537
U. S. Geological Survey			
P.L. 566 Watersheds .....	36,353	75,898	70,050
Total .....	10,534,329	25,595,833	23,700,000

## Public Law 566 Watersheds

After local sponsoring organizations have developed watershed work plans with the Department's assistance and the projects have been approved as suitable for Federal participation (projects involving an estimated Federal

contribution to construction costs in excess of \$250,000, or any single structure having a capacity in excess of 2,500 acre feet require congressional committee approval), technical services and cost-sharing assistance are provided for specified works of improvement. Detailed construction plans and specifications are prepared. On other than Federal lands the local sponsoring organizations contract for the construction work; provide land easements and rights-of-way; operate and maintain the projects; and in the case of multiple-purpose structures bear a share of the construction costs. The initiation of installation of works of improvement in new projects requires administrative approval in two stages: (1) approval for advance engineering and other technical assistance only and (2) approval for construction of structural measures.

The advance engineering and technical assistance stage includes surveys, investigations, and preparation of detailed designs, specifications, and engineering cost estimates for construction of structural works. It also includes precise delineation of required easement areas. Technical and other assistance for planning and applying land treatment measures for watershed protection and flood prevention is provided in some cases.

The project-construction stage begins with the execution of the first project agreement for construction of works of improvement, after required easements are obtained or are assured and the local organization has met all other requirements. Under a project agreement the local sponsoring organization agrees to construct a segment of the project which may consist of an individual or an interrelated group of structures. The agreement obligates the Government to furnish its share of the construction cost. Funds are advanced to the local organization as segments of work are completed. Engineering and other services are provided for the preparation of contracts and specifications, awarding of contracts, and supervision and inspection of construction. Technical assistance with land treatment measures is continued.

The following table shows the status of "Public Law 566" projects with respect to approvals for advance technical assistance and construction:

[Dollars in Thousands]

Explanation	1958 Actual		1959 Estimate		1960 Estimate	
	No.	Amount	No.	Amount	No.	Amount
Projects approved for advance engineering and technical assistance (number and estimated cost of completion, unless otherwise indicated):						
Projects underway at beginning of year.....	23	\$10,289	53	\$27,095	93	\$67,637
Projects initiated during the year.....	<u>58</u>	<u>28,564</u>	<u>100</u>	<u>92,867</u>	<u>60</u>	<u>34,800</u>
Subtotal.....	81	38,853	153	119,962	153	102,437
Deduct projects approved for construction during the year.....	<u>28</u>	<u>11,053</u>	<u>60</u>	<u>50,925</u>	<u>40</u>	<u>32,750</u>
Net projects approved.....	53	27,800	93	69,037	113	69,687
Deduct amounts obligated during the year for advance engineering and technical assistance.....	--	<u>705</u>	--	<u>1,400</u>	--	<u>1,700</u>
Total, projects receiving only advance engineering and technical assistance at end of year.....	<u>53</u>	<u>27,095</u>	<u>93</u>	<u>67,637</u>	<u>113</u>	<u>67,987</u>
Projects approved for construction (number and estimated cost of completion, unless otherwise indicated):						
Projects underway at beginning of year.....	19	7,885	45	13,419	100	46,544
Projects initiated during the year.....	<u>28</u>	<u>11,053</u>	<u>60</u>	<u>50,925</u>	<u>40</u>	<u>32,750</u>
Total, projects under construction during year.....	47	18,938	105	64,344	140	79,294
Deduct amounts obligated during year for works of Improvement on;						
(a) Projects approved for construction during the year.....	--	3,527	---	9,900	---	3,200
(b) Projects completed during the year.....	2	147	5	168	8	160
(c) Continuing prior year projects.....	--	<u>1,845</u>	---	<u>7,732</u>	---	<u>14,140</u>
Total, projects under construction at end of year....	<u>45</u>	<u>13,419</u>	<u>100</u>	<u>46,544</u>	<u>132</u>	<u>61,794</u>
Grand total: Projects in progress at end of year.....	98	40,514	193	114,181	245	129,781



The 1959 budget (as amended by H. Doc. 351, 85th Congress) originally contemplated approval of about 100 new projects during the 1959 fiscal year. Current estimates are that only 60 projects will be ready during the 1959 fiscal year for construction, as defined above. Unobligated balances will be available to begin "construction" in 1960 and the 40 projects delayed from 1959.

Pilot Demonstration Watersheds

The following table shows the status of the active pilot watersheds which were initiated in 1954 to demonstrate and evaluate the effects of works of improvement installed in small watersheds for watershed protection and flood prevention. The budget estimate reflects reductions due to completion of some pilot projects.

[Dollars in Thousands]

<u>Explanation</u>	<u>1958 actual</u>		<u>1959 estimate</u>		<u>1960 estimate</u>	
	<u>Num- ber</u>	<u>Amount</u>	<u>Num- ber</u>	<u>Amount</u>	<u>Num- ber</u>	<u>Amount</u>
Active projects at beginning of year and estimated completion cost ....	54	\$19,560	32	\$15,152	21	\$8,756
Deduct discontinued projects and estimated completion cost .....	<u>1</u>	<u>211</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>
Subtotal .....	<u>53</u>	<u>19,349</u>	<u>32</u>	<u>15,152</u>	<u>21</u>	<u>8,756</u>
Deduct amounts obligated during the year for:						
(a) Projects completed during the year .....	21	614	11	1,309	9	1,450
(b) Other projects .....	<u>--</u>	<u>3,583</u>	<u>--</u>	<u>5,087</u>	<u>--</u>	<u>3,050</u>
Subtotal .....	<u>21</u>	<u>4,197</u>	<u>11</u>	<u>6,396</u>	<u>9</u>	<u>4,500</u>
Total, projects in progress at end of year and estimated completion cost .....	32	15,152	21	8,756	12	4,256

Originally 62 pilot watershed projects were started in cooperation with local sponsors. This was in the 1954 fiscal year. Before the projects originally planned to be constructed were completed eight of them were discontinued at the request of the sponsors. The Money Creek Watershed

in Illinois was just discontinued on June 30, 1958. This left only 54 projects to be constructed. The installation of works of improvement was completed on the White Tanks project in Arizona in the fiscal year 1955 and on an additional twenty-one in the 1958 fiscal year, as follows:

Aiken Creek-Bee Creek, Kansas	Mule Creek, Iowa
Baboosic Brook, New Hampshire	North Fork of Rough River, Kentucky
Corey Creek, Pennsylvania	Old Tom Creek, Illinois
Dean Creek, New York	Plum Creek, Kentucky
Double Creek, Oklahoma	Red River, Upper, Kentucky
East Fork Felling River, Virginia	Sandia Mountain Tribs., New Mexico
Flat Creek, Indiana	Scott Creek, South Dakota
Great Brook, New York	Snipe Creek, Kansas
Green Creek, Texas	Upper Green River, Kentucky
Honey Creek, Iowa	West Fork of Kickapoo, Wisconsin
Mission Creek, Washington	

Project installations are scheduled for completion in eleven watersheds in ten States during the 1959 fiscal year and in nine more watersheds in nine States in the fiscal year 1960. Twelve Pilot watershed projects will remain to be completed after June 30, 1960.

Project evaluations will be made on some of the projects completed this past year for as much as three more years, and small amounts of Federal funds will be used in the fiscal year 1959 to prepare completion records.

At the close of the 1958 fiscal year the following major structural measures were contracted for or had been installed in "pilot" watersheds:

Floodwater retarding structures	240 (123,222 acre feet)
Stabilizing and sediment control structures	1,592
Channel stabilizing and improvement	199 miles

Changes in Pilot Project Cost and  
Completion Schedules

The estimated Federal share of the cost of completion of works of improvement in 22 of the 54 projects were revised during the past fiscal year. Revised cost-sharing agreements in the Walnut Creek and Calleguas Creek projects in California and the Upper Hocking River project in Ohio were negotiated to adjust the Federal share of the cost of structural measures in these projects more nearly in line with the average Federal share of the cost of these measures in the other pilot watersheds. At the same time also, the estimated completion dates of the Walnut Creek and Calleguas Creek projects were extended to the fiscal year 1966 to be consistent with the tax revenues with which the sponsoring local organizations finance their share of the project costs.

Progress in some of the other larger projects is such that it is not likely that they will be completed within currently approved schedules so that extension beyond the fiscal year 1961 will be required to complete the planned installations of works of improvement. Among these projects may be the Chippewa River Tributaries and Hawk Creek Watershed, Minnesota; Upper Salt-Swedeburg Tributaries of the Salt Creek Watershed, Nebraska; Tongue River Watershed, North Dakota; Upper Hocking including Hunter's Run Watershed, Ohio; and Twelve Mile Creek Watershed, South Carolina. No change in the agreed upon cost-sharing arrangements will be involved in the event time extensions are made in these projects.

The total Federal cost of the 62 pilot projects, including the eight that were terminated at the request of the sponsors, is now estimated to be approximately \$41,000,000. This represents an increase of approximately \$5,900,000 from the total Federal cost estimate of \$35,097,627 made in February 1957. Of this increase \$4,584,872 is a result of readjusted cost-sharing on the three above mentioned projects. The additional estimated increase of approximately \$1,318,000 in other projects is due to the increase in construction costs during the past two years.



Status of Pilot and Public Law 566 Projects

The following table shows by State and watershed name descriptive information concerning each "Pilot" and "Public Law 566" Watershed approved for installation of a program of works of improvement by June 30, 1958:

(The watersheds named below are P. L. 566 unless otherwise indicated)

State and Watershed	Watershed Area (Acres)	Estimated Federal Cost	% Fed. Cost to Total Cost	Total Cumulative Fed. Cost to 6/30/58 (Dollars)	% of Fed. Cost as of 6/30/58	Sched. Date of Completion
<u>ALABAMA</u>						
Brackins Mill Creek ..	3,400	\$220,372	70.8	\$3,041	1.4	1963
Clear Creek .....	11,800	88,300	64.3	81,781	92.6	1962
High Pine Creek .....	51,590	482,836	48.2	1,716	0.4	1963
Little New River .....	32,506	175,866	45.1	4,933	2.8	1963
<u>ARIZONA</u>						
Squaw Peak-South Mountain (Pilot) 1/	--	--	--	--	--	--
White Tanks (Pilot) 3/	178,560	213,507	49.5	213,507	100.0	1955
<u>ARKANSAS</u>						
Camp Bayou .....	21,756	108,621	42.7	3,117	2.9	1964
Caney Creek .....	39,680	764,649	67.5	79,138	10.3	1963
Six Mile Creek (Pilot)	168,320	2,268,000	67.3	2,013,389	88.8	1959
<u>CALIFORNIA</u>						
Adobe Creek (Pilot) 2/	21,440	50,740	--	50,740	--	1955
Arroyo Grande Creek ..	103,400	289,244	67.0	177,602	61.4	1962
Calleguas Creek (Pilot)	208,000	3,770,000	46.4	1,466,446	38.9	1966
Walnut Creek (Pilot) .	80,000	4,542,000	55.9	1,693,519	37.3	1966
<u>COLORADO</u>						
Big Sandy Creek .....	219,000	798,647	65.7	22,503	2.8	1963
Kiowa Creek (Pilot) ..	106,880	879,000	65.3	683,933	77.8	1960
Wray Watershed .....	2,386	155,860	88.3	107,704	69.1	1962
<u>CONNECTICUT</u>						
Roaring Brook-Walnut Street Brook .....	5,070	40,550	74.4	37,924	93.5	1963
<u>DELAWARE</u>						
Bear Hole .....	4,523	174,748	53.8	156,701	89.7	1962
<u>FLORIDA</u>						
Fisheating Creek .....	51,200	254,253	51.3	205,230	80.7	1963
Lake Placid East Chain of Lakes .....	12,500	70,409	78.6	62,666	89.0	1961
North St. Lucie River Drainage District ..	60,220	348,420	25.9	--	--	1964

State and Watershed	Watershed Area (Acres)	Estimated Federal Cost	% Fed. Cost to Total	Total Cumulative Fed. cost to 6/30/58 (Dollars)	% of Fed. Cost as of 6/30/58	Sched. date of Completion
<u>GEORGIA</u>						
Barber Creek .....	26,899	\$293,226	47.3	\$1,961	0.7	1964
Bear Creek .....	23,324	180,574	37.5	138,712	76.8	1962
Little Tallapoosa River...	62,516	1,080,860	63.8	17,280	1.6	1965
North Fork at Broad River (Pilot)....	40,598	937,000	63.8	590,249	63.0	1959
Rocky Creek .....	20,700	61,402	29.7	56,890	92.7	1962
Rooty Creek .....	29,483	234,817	66.5	90,859	38.7	1963
Sautee Creek .....	20,000	198,384	54.9	82,264	41.5	1963
<u>IDAHO</u>						
Dry Creek (Pilot) <sup>2/</sup> .....	44,800	101,759	--	101,759	--	1957
<u>ILLINOIS</u>						
Hadley Creek (Pilot)....	46,272	1,180,000	80.7	724,251	61.4	1961
Money Creek (Pilot) <sup>2/</sup> ...	42,800	32,020	--	32,020	--	1958
Old Tom Creek (Pilot) <sup>3/</sup> ...	11,520	222,300	83.3	214,870	96.7	1958
Tiskilwa Area .....	3,300	360,000	88.4	354,789	98.6	1959
<u>INDIANA</u>						
Elk Creek .....	18,020	284,093	60.8	17,552	6.2	1963
Flat Creek (Pilot) <sup>3/</sup> .....	36,634	161,824	58.6	161,824	100.0	1958
Prairie Creek .....	88,690	1,269,690	53.7	5,125	0.4	1964
<u>IOWA</u>						
Floyd River						
Tributaries (Pilot)....	15,776	44,000	14.8	24,087	54.7	1961
Harmony Creek .....	3,100	164,500	85.0	159,063	96.7	1959
Honey Creek (Pilot) <sup>3/</sup> ....	9,120	244,000	50.8	235,769	96.6	1958
Mule Creek (Pilot) <sup>3/</sup> .....	8,000	493,000	64.6	471,827	95.7	1958
Rocky Branch Creek .....	8,663	257,393	87.9	82,264	32.0	1963
Simpson Creek .....	2,393	114,000	85.8	108,629	95.2	1959
<u>KANSAS</u>						
Aiken Creek(Pilot) <sup>3/</sup> .....	6,726	116,600	57.2	115,641	99.2	1958
Bills Creek (Pilot) <sup>2/</sup> .....	16,000	20,972	--	20,972	--	1954
Cimarron Watershed Dist...	6,440	128,168	69.4	51,291	40.0	1959
Little Delaware						
Mission (Pilot).....	28,160	596,000	61.9	563,370	94.5	1959
Lost Creek (Pilot) .....	12,800	201,000	58.9	120,348	59.9	1960
Snipe Creek (Pilot) <sup>3/</sup> .....	16,640	145,000	54.2	143,746	99.1	1958
Switzler Creek (Pilot)....	21,120	320,000	45.7	184,110	57.5	1961
Thompsonville .....	4,062	117,494	94.6	1,382	1.2	1960

State and Watershed	Watershed Area (Acres)	Estimated Federal Cost	% Fed. Total Cost	Total Cumulative Fed. cost to 6/30/58 (Dollars)	% of Fed. Cost as of 6/30/58	Sched. Date of Completion
<b>KENTUCKY</b>						
Canoe Creek .....	76,643	\$562,920	23.7	--	--	1964
Cypress Creek .....	32,424	193,199	26.0	\$33,075	17.1	1962
North Fork of Rough River (Pilot) <sup>3/</sup> .....	24,960	373,000	53.5	368,335	98.7	1958
Plum Creek (Pilot) <sup>3/</sup> .....	22,560	649,000	50.5	606,625	93.5	1958
Red River (Pilot) <sup>3/</sup> .....	60,000	356,500	64.6	351,203	98.5	1958
Twin Creek .....	17,418	55,085	20.3	23,238	42.2	1962
Upper Green River (Pilot) <sup>3/</sup> .....	24,998	383,700	58.0	380,331	99.1	1958
<b>LOUISIANA</b>						
Bayou Dupont .....	57,610	1,421,081	67.8	586,379	41.3	1962
Upper Bayou Nezpigue .....	214,157	662,861	28.6	82,001	12.4	1963
Upper West Fork of Cypress Bayou .....	5,550	175,953	67.1	515	0.3	1963
<b>MARYLAND</b>						
Little Deer Creek .....	10,112	220,155	73.8	71,659	32.5	1962
Little Youghiogheny .....	26,275	362,971	58.1	12,753	3.5	1962
Timmonstown Branch .....	8,655	182,108	50.1	141,028	77.4	1962
<b>MASSACHUSETTS</b>						
Baiting Brook .....	2,182	33,026	71.2	3,408	10.3	1959
<b>MICHIGAN</b>						
Little Black River .....	17,130	98,690	62.7	5,409	5.5	1964
<b>MINNESOTA</b>						
Chippewa River Tribs. & Hawk Creek (Pilot) ...	60,800	1,671,000	47.3	682,406	40.8	1961
East Willow Creek (Pilot) .....	24,000	279,000	59.6	266,701	95.6	1959
Rush Pine Creek .....	88,050	47,092	20.1	20,154	42.8	1962
South and North Fork of the Crow (Pilot) <sup>1/</sup> .....	--	--	--	--	--	--
<b>MISSISSIPPI</b>						
Ellison Creek .....	19,150	427,768	69.8	149	--	1962
Tackett Creek .....	8,850	214,216	60.4	17,439	8.1	1962
<b>MISSOURI</b>						
East Branch of the South Fork of the Black Water River (Pilot) .....	12,800	449,000	60.1	362,631	80.8	1960
Lost Creek (Pilot) .....	8,960	328,000	70.0	269,709	82.2	1959
<b>MONTANA</b>						
Muster Creek (Pilot) <sup>2/</sup> .....	32,000	8,622	--	8,622	--	1955



State and Watershed	Watershed Area (Acres)	Estimated Federal Cost	% Fed. Total Cost	Total Cumulative Fed. cost to 6/30/58 (Dollars)	% of Fed. Obligation as of 6/30/58	Schedule date of completion
<u>NEBRASKA</u>						
Antelope Creek .....	107,072	\$403,360	30.1	--	--	1967
Brownell Creek (Pilot)...	15,360	523,000	51.5	\$429,991	82.2	1960
Dry Creek (Pilot) .....	31,360	368,000	66.5	257,224	69.9	1959
Indian Creek (Pilot) .....	51,200	887,000	44.7	623,379	70.3	1961
Oak-Middle Creek .....	240,000	935,915	30.7	90,297	9.6	1965
Plattsmouth Area .....	2,465	114,400	50.1	18,819	16.5	1962
Upper Salt -						
Swedeburg (Pilot).....	114,516	1,618,000	60.3	950,656	58.8	1961
Wildhorse .....	26,000	347,645	40.6	124,040	35.7	1965
<u>NEW HAMPSHIRE</u>						
Baboosic Brook (Pilot)3/..	30,528	52,465	54.3	52,465	100.0	1958
Ash Swamp, Tannery,						
White and Black Brooks	12,800	134,649	47.1	11,831	8.8	1963
<u>NEW JERSEY</u>						
Pequest (Pilot) .....	69,120	782,000	68.9	750,142	96.1	1959
Silver Lake -						
Locust Island .....	5,590	148,917	75.3	17,122	11.5	1962
Stony Brook .....	30,604	266,910	53.2	35,846	13.4	1967
<u>NEW MEXICO</u>						
Caballo Arroyos .....	7,680	280,293	97.9	13	--	1961
Dona Ana Arroyo .....	6,950	179,710	91.5	179,710	100.0	1958
Hatch Valley Arroyos .....	14,521	334,482	99.4	326,932	97.7	1958
Sandia Mt. Tribs						
(Pilot)3/.....	48,000	150,000	80.9	140,499	93.7	1958
Upper Rio Hondo (Pilot)...	192,000	777,000	65.5	367,576	47.3	1960
Upper Rio Penasco .....	128,000	312,937	87.4	79,170	25.3	1962
Zuber Draw .....	115,840	365,196	69.7	6,941	1.9	1964
<u>NEW YORK</u>						
Ball Creek (Pilot)2/.....	5,888	20,102	--	20,102	--	1956
Cowaselon Creek .....	69,000	526,433	47.0	19,867	3.7	1964
Dean Creek (Pilot)3/.....	6,400	130,000	75.4	123,885	95.3	1958
Great Brook (Pilot) .....	16,640	68,434	73.1	68,434	100.0	1958
Little Hoosick (Pilot)...	21,760	469,000	82.0	116,978	24.9	1960
<u>NORTH CAROLINA</u>						
Abbotts Creek .....	115,300	812,140	43.1	29,788	3.7	1966
Bear Creek .....	38,650	342,101	49.6	10,507	3.1	1964
Deep Creek .....	75,300	702,818	56.3	15,882	2.3	1964
Mud Creek .....	71,850	800,346	43.3	7,880	1.0	1964
Third Creek (Pilot) .....	66,240	721,000	50.8	497,948	69.1	1960

State and Watershed	Watershed Area (Acres)	Estimated Federal Cost	% Fed. Total Cost	Total Cumulative Fed. Cost to 6/30/58 (Dollars)	% of Fed. Cost as of 6/30/58	Sched. Date of Completion
NORTH DAKOTA						
Swan-Buffalo Creek .....	203,520	\$757,704	45.3	\$3,378	0.4	1964
Tongue River (Pilot).....	419,200	3,816,000	83.4	1,528,332	40.1	1960
Wild Rice Creek .....	233,522	671,929	53.8	--	--	1964
OHIO						
Rocky Fork-Clear Creek (Pilot)2/.....	28,045	91,862	--	91,862	--	1957
Upper Hocking River (Pilot) .....	21,121	1,361,000	79.3	439,189	32.3	1961
OKLAHOMA						
Bear, Fall and Coon Creeks .....	120,960	1,301,010	68.4	--	--	1964
Big Wewoka Creek .....	172,525	2,053,331	50.6	637,450	31.0	1967
Double Creek (Pilot)3/....	33,280	408,000	57.3	373,681	91.6	1958
Little Deep Fork Creek ..	167,488	1,483,875	43.9	19,812	1.3	1969
Little Wewoka-Graves Creek .....	122,445	934,486	46.1	275,379	29.5	1967
Long Branch .....	28,160	305,543	49.0	83,320	27.3	1962
Sandy Creek .....	147,243	1,549,139	47.4	41,683	2.7	1968
OREGON						
Lynx Hollow .....	11,720	203,300	57.5	2,952	1.5	1964
Little Pudding River .....	36,246	1,119,973	80.8	6,093	0.5	1964
PENNSYLVANIA						
Corey Creek (Pilot)3/....	16,000	65,405	37.9	65,405	100.0	1958
Jacks Run (Pilot)1/.....	--	--	--	--	--	--
Lackawaxen Tributaries ..	26,625	176,456	36.9	4,524	2.6	1964
SOUTH CAROLINA						
Coneross Creek .....	43,300	455,014	57.7	84,854	18.6	1962
Twelve Mile Creek (Pilot):	78,720	1,224,000	50.7	650,893	53.2	1961
SOUTH DAKOTA						
Pattee Creek .....	25,462	306,307	48.8	1,944	0.6	1964
Richland Creek .....	6,115	60,098	48.4	3,579	6.0	1963
Scott Creek (Pilot)3/....	2,560	140,000	82.1	131,943	94.2	1958
Silver Creek .....	20,661	260,769	68.0	31,336	12.0	1962
TENNESSEE						
Johnson Creek .....	22,610	405,793	59.9	101,772	25.1	1962
Thompson Creek .....	18,700	225,086	46.8	13,435	5.9	1964
Wolf River Tribs (Pilot)..	14,528	533,000	61.3	300,479	56.4	1961



State and Watershed	Watershed Area (Acres)	Estimated Federal Cost	% Fed. Cost to Total	Total Cumulative Fed. Cost to 6/30/58 (Dollars)	% of Fed. Cost as of 6/30/58	Sched. Date of Completion
<b>TEXAS</b>						
Alamo Arroyo .....	83,603	\$652,865	98.2	\$207,420	31.8	1962
Auds Creek .....	31,670	461,330	53.3	--	--	1964
Calaveras Creek (Pilot)	61,440	578,000	71.3	537,652	93.0	1960
Cow Bayou (Pilot) ....	65,920	1,091,000	67.0	798,692	73.2	1959
Cummins Creek .....	204,896	2,107,500	45.0	524,899	24.9	1967
Diablo Arroyo .....	40,992	425,808	96.2	121,522	28.5	1961
Escondido Creek (Pilot)	51,200	770,000	64.5	741,073	96.2	1961
Green Creek (Pilot) 3/	67,200	1,075,000	77.2	1,054,302	98.1	1958
Johnsons Draw .....	101,760	1,159,718	65.9	977,315	84.3	1962
Knob Creek .....	23,870	491,931	68.3	4,520	0.9	1964
Langford Creek .....	25,030	346,111	56.3	--	--	1964
Lower Brushy Creek ...	138,240	2,821,081	52.7	12,975	0.5	1967
Sulphur Creek .....	85,120	1,050,565	83.1	877,831	83.6	1963
Turkey Creek .....	18,880	48,643	14.9	39,927	82.1	1962
Upper Brushy Creek ...	191,360	2,858,314	58.1	366,021	12.8	1967
York Creek .....	93,824	1,992,239	68.8	16,585	0.8	1964
<b>UTAH</b>						
Green's Lake .....	6,235	325,386	87.1	247,957	81.3	1962
Mill Canyon-Sage Flat.	15,296	159,266	90.2	157,548	82.2	1962
Pleasant Creek (Pilot)	10,880	396,000	87.1	333,562	84.2	1959
Santaquin Canyon (Pilot)	25,600	138,000	80.5	123,683	89.6	1959
<b>VIRGINIA</b>						
Back Creek .....	22,340	32,017	10.3	17,578	54.9	1962
Mountain Run .....	28,700	169,630	31.1	40,088	23.6	1963
East Fork Falling River (Pilot) 3/....	41,997	276,000	61.8	270,050	97.8	1958
<b>WASHINGTON</b>						
Chimacum Creek .....	24,965	178,124	51.1	--	--	1967
Lacamas Creek						
Tributaries .....	13,972	412,753	38.6	27,015	6.5	1968
Mission Creek (Pilot) 3/	54,400	340,000	98.3	339,288	99.8	1958
Saar Creek .....	11,233	103,274	42.0	62,755	60.8	1967
Spring Valley Creek (Pilot) 2/....	54,400	4,293	--	4,293	--	1954
<b>WEST VIRGINIA</b>						
Daves Fork - Christians Fork .....	4,154	215,984	82.8	101,832	47.1	1968
Salem Fork of Ten Mile Creek (Pilot) ...	5,760	370,000	81.6	319,440	86.3	1959
Upper Graves Creek ....	4,920	349,753	63.2	172,484	49.3	1962



State and Watershed	Watershed Area (Acres)	Estimated Federal Cost	% Fed. Total Cost	Total Cumulative Fed. Cost to 6/30/58 (Dollars)	% of Fed. Cost as of 6/30/58	Sched. Date of Completion
<u>WISCONSIN</u>						
Lost Creek .....	5,189	\$ 108,000	68.7	\$92,372	85.5	1963
Mill Creek .....	39,096	447,512	86.3	10,785	2.4	1964
West Fork of Kickapoo (Pilot).....	17,945	153,000	84.0	143,678	93.9	1958
<u>WYOMING</u>						
Pine Ridge-Case Bier .....	25,666	279,885	86.5	235,897	84.3	1960

- 1/ Project not authorized, no local sponsor.
- 2/ Terminated before completion at sponsors request.
- 3/ Project installation complete on date shown - special evaluation of the effect of flood size storms will continue on some of these projects for a limited number of years and completion reports made on a number of those completed in 1958.

### Thirty-Four Multiple-Purpose Projects Started

Thirty-four of the 123 "Public Law 566" projects approved for operation as of July 31, 1958 included structural measures having multiple-purposes. In addition to flood prevention, 19 of these projects included drainage improvements, 2 both drainage and irrigation, and 2 irrigation alone. In 7 projects improvements were planned for municipal water supplies, and in 4 others additional storage was planned for recreational purposes.

Under the Watershed Protection and Flood Prevention Act, as amended, the local organization and Federal Government both bear an equitable share of the construction costs where agricultural water management measures, such as drainage and irrigation are involved. Where planned works of improvement include non-agricultural water management measures, such as provision for additional storage for municipal water supplies, for recreational purposes, for pollution abatement by streamflow regulation, etc., the entire cost of such features must be borne by the local people. The Federal Government is required to bear the entire construction cost, including engineering services, of structural works of improvement that is allocated to flood prevention.

Twelve of the 34 multiple-purpose projects mentioned above include non-agricultural water management features estimated to cost the local organizations over \$834,000. Twenty-three of the projects contain agricultural water management features estimated to cost about \$3,900,000. The local organizations are to bear about \$2,300,000 of this cost. The total cost of the structural measures in the 34 projects amounts to more than \$22,000,000.

Some examples of projects which include, in addition to flood prevention, non-agricultural and agricultural water management features toward which the local organization will make cash contributions are:

#### 1. Florida - North St. Lucie River Drainage District

Floodwater damage to citrus groves and over-drainage in dry seasons constitute the principal problems in this 94 square mile watershed. The works of improvement to be installed include land treatment measures for watershed protection and structural measures, such as channel improvement, drop spillways, and a pumping station for both flood prevention and agricultural water management. The local organization is to bear in full the installation cost of the land treatment measures and \$227,863 of the total cost of the structural measures which amounts to \$563,983, according to cost estimates in the watershed work plan.

2. Kentucky - Mud River Watershed

The structural measures to protect nearly 14,000 acres of flood plain consist of 25 single-purpose floodwater retarding structures, one multiple-purpose structure, and 82,500 linear feet of stream channel improvement. The multiple-purpose structure has an estimated installation cost of \$463,297. The Kentucky Department of Fish and Wildlife Resources is contributing \$395,503 of this cost for the additional 13,944 acre-feet storage capacity provided to make an 826 acre recreational lake.

3. Montana - Lower Willow Creek Watershed

The major purpose of this project is to supply badly needed supplemental irrigation water to 3,134 acres of crop and pasture land, although floodwater and scour damage will be sharply reduced at the same time. The structural measures planned include one supplemental irrigation water supply reservoir of about 5,100 acre-feet total storage capacity and a 7 mile long distribution canal with necessary appurtenances. The structural measures to be installed are estimated to cost a total of \$546,350. The local organization will bear \$292,520 of this cost. The local organization is assuming as its share 65% of the total project cost of \$834,540.

4. New Hampshire - Ash Swamp, Tannery, White and Black Brooks Watershed

Poor drainage conditions and flooding have prevented making full use of 1,580 acres of flood plains in this project for agricultural, residential and industrial purposes. Structural measures planned to alleviate these conditions consist of the construction of 7.4 miles of main channel and 3.3 miles of branch ditches plus modification of channel crossings at a total installation cost of \$214,781. Of this amount, the sponsors have agreed to pay \$68,847 for the non-agricultural and agricultural water management features included in the works of improvement to be installed.

5. New York - Cowaselon Creek Watershed

Flood prevention and drainage improvements planned for installation are estimated to produce average annual monetary benefits of \$169,463, mainly to cropland in the Oneida Lake plain area. The major benefitting measure planned is 36 miles of channel improvement for flood prevention and agricultural water management. The total installation cost of the structural measures is estimated to be \$631,545 of which the local organizations' share will be \$141,917.



6. Texas - Langford Creek Watershed

One of the 12 floodwater detention structures planned on this project will be a multiple-purpose structure providing an additional 1,118 acre-feet of non-agricultural water storage for recreation and standby municipal and industrial uses. The total installation cost of this structure is estimated at \$128,066 but \$72,246 of this will be borne by the Red River County Water Control and Improvement District No. 1, Langford Creek, for the additional storage capacity provided.

7. Virginia - Mountain Run Watershed

One of the 3 floodwater retarding structures to be built to protect the town of Culpeper and 1,368 acres of flood plain is a dual-purpose structure providing an additional 500 acre-feet of badly needed municipal water storage capacity. This structure is estimated to cost \$89,124. The town of Culpeper is contributing \$38,490 as its share for the municipal water supply provided.

Soil Surveys and Farm Conservation Plans in Watersheds

(Pilot and P. L. 566 Watersheds)

	: Totals in Project Area	: 1958 (Actual
	: (Including "Conservation	: With Watershed
	: Operations") Cumulative	: Protection
	: June 30, 1958	: Funds)
Soil Surveys (acres).....	4,743,848	66,579
Total number cooperators.....	24,155	1,942
Basic conservation plans		
Number.....	18,373	1,677
Acres.....	3,163,215	227,677

Works of Improvement Installed in Watersheds

(Pilot and P. L. 566 Watersheds)

		1958 Accomplishments (Actual)		Total
Measure	Unit	With Watershed	With Conserva-	on the
		Protection	tion Operation	Land to
		Funds	Funds	6/30/58
<u>Land Treatment Measures:</u>				
Contour farming .....	Acre	8,744	8,729	247,873
Cover cropping .....	Acre	19,080	14,779	164,290
Crop residue utilization .....	Acre	18,937	12,324	392,019
Stripcropping .....	Acre	3,189	2,109	64,910
Pasture planting .....	Acre	20,548	17,379	264,802
Revegetation .....	Acre	1,846	85	9,722
Range improvement .....	Acre	31,047	5,161	179,422
Terraces .....	Mile	583	400	17,030
Diversions .....	Mile	43	30	1,242
Pond construction .....	No.	202	251	7,437
Waterway development .....	Acre	845	467	15,870
Tree planting .....	Acre	1,284	1,196	17,667
Woodland protection .....	Acre	1,993	616	20,950
Wildlife area improvement ....	Acre	1,005	151	5,704
Erosion control structures ...	No.	35	38	4,820
<u>Structural and Land</u>				
<u>Stabilization Measures:</u>				
Floodwater retarding				
structures .....	(No.	55	-	271
	(Ac.Ft.	36,294	-	145,001
Stabilization and sediment				
control:				
(a) Structures .....	No.	38	-	1,595
(b) Silt and debris basins .	No.	20	-	208
Subwatershed waterway				
improvement:				
(a) Outlet construction ....	Mile	23	-	84
Stream channel improvement:				
(a) Channel stabilization ..	Mile	3	-	39
(b) Channel improvement ....	Mile	64	-	195
Diversion ditches and dikes ..	Mile	10	-	84
Stabilization of critical				
area:				
(a) Roadside erosion				
control .....	Mile	76	8	539
(b) Revegetation .....	Acre	5,304	66	25,162

Pilot Projects Demonstrate Program Effectiveness

During the fiscal year 1958 the installation of works of improvement was essentially completed in 21 of the 54 active pilot watersheds and good progress was being made in most of the others. A few examples of the progress being made and benefits accruing to individual projects through the application of a complete program of watershed protection follows:

1. Kansas-Snipe Creek Watershed

Three storms occurred during the year in this 16,640 acre watershed producing considerable runoff, but no flooding occurred due to the installation of six of the eight planned floodwater retarding structures and 75% of the planned land treatment measures. If these watershed measures had not been in place considerable flooding with resulting damages would have occurred. Since the local sponsors were unable to obtain easements for two of the structures originally planned, this project was considered as completed on June 30, 1958 with the concurrence of the sponsors.

2. Kentucky-Plum Creek Watershed

The works of improvement installed in this watershed have been effective in reducing flood damages in this 23,688 acre watershed project. After a 2-1/2 inch rain in 8 hours during April, 1958, with the ground already saturated from previous rains, no flooding occurred. Normally the water would have flooded over much of the bottomland. Ten of the 11 planned floodwater retarding structures had been completed at the time of the rain. The last one was under construction in July, 1958. Twenty miles of subwatershed waterways have been improved and construction of 7 miles of main channel improvement has almost been completed. The planned land treatment measures were about 50% completed at the end of the fiscal year. Vigorous pasture and hay growth protecting the steep slopes with row crops confined to the more level bottomland and ridge tops are the conservation measures most readily seen throughout the area. All but 10 of the 150 farmers in the project have basic farm conservation plans.

3. Missouri-Lost Creek Watershed

Although this project is not scheduled for completion until late in the fiscal year 1959, the local people have already seen the effectiveness of the installed works of improvement in the control of flooding and erosion. During the month of June 1957, a single heavy storm poured 3 to 4 inches of rainfall over the area. Water flooded some land in the Lost Creek bottom but the resulting damages were much less than those in adjacent untreated watersheds where severe flooding was experienced. As of June 30, 1958, seven floodwater retarding and four stabilization-sediment control structures had been installed to bring the structural measure program within 70% of completion. Of the 85 farm operators in the watershed, 69 are district cooperators who have installed about 65% of the planned land treatment measures.



4. New Jersey-Pequest Watershed

Many benefits from the project installations were realized during the growing seasons of 1957 and 1958. If 9-1/2 miles of channel improvement had not been completed, the main problem area of 1,000 acres of intensively cropped muckland would have flooded as a result of late winter snows and early spring rains, causing severe damage to the land, to early planted crops, and to farm buildings and equipment. Pump drainage systems in use prior to the project installations are no longer needed. Farmers have found that they can plant earlier and with assurance that their crops will not be flooded out. They have found that their drainage ditches could be rearranged for more efficient operation and that cropland that was often idle because of flooding can now be farmed again. Farm land values in the problem area have increased and the over-all economy and morale of the farmers greatly improved. The third and last contract has recently been awarded for 1/2 mile of channel improvement and the project is scheduled to be completed during the 1959 fiscal year. The land treatment program is more than 80% completed in this 69,120 acre watershed.

5. North Carolina-Third Creek Watershed

The value of the land treatment and structural measures installed at the time was demonstrated during the winter rains of 1957-58 in this 66,240 acre watershed project. No significant flooding occurred on Third Creek, while on Fourth Creek, an adjacent watershed, flooding occurred frequently. Six of the 11 floodwater retarding structures provided for in the plan have been completed. Thirty-one of the planned 43 miles of clearing and snagging on main and lateral channels had been completed and contracts awarded for the remainder at the close of the fiscal year 1958. Vegetation of erosion hazard areas with legumes and grasses had been completed on 986 of the planned 1,543 acre total. In addition, 393 of a planned 570 acres of trees had been planted by the Forest Service, while individual landowners had planted an additional 312 acres. Roadside treatment had been completed on 20 of the planned 141 miles. Stripcropping, terracing, and crop rotations are being established by individual farmers at a satisfactory rate. The total estimated project cost is \$1,419,611 of which the Federal share is \$648,041.

P. L. 566 Project Installations Accelerated

Project installations of structural works of improvement were completed during the fiscal year 1958 in 2 of the 100 operating P. L. 566 projects and work was progressing well in most of the other 98 projects. A few examples of the progress being made in individual projects follows:

1. Delaware-Bear Hole Watershed

The multiple-purpose structural works of improvement in the 4,523 acre Bear Hole Watershed are scheduled for completion in fiscal year 1959 despite exceptionally poor construction conditions during the winter of 1957 and 1958. The major improvement measures,

including brush clearing, and main and lateral channel excavation, were approximately 90% complete on June 30, 1958, including 25 of the 27 miles of channel improvement. Even though only partially completed the project installations provided a large measure of protection to the 1958 crops from damage by floodwater and poor drainage. As the structural measures are nearing completion renewed emphasis is being given to basic farm planning. Of the 120 farms in the watershed, 88 were district cooperators and 44 had basic conservation plans covering 50% of the project area on June 30, 1958. The project, sponsored by the Delaware State Soil Conservation Commission, is estimated to cost \$325,000 of which the local share is \$150,000.

2. Kentucky-Cypress Creek Watershed

This project, covering 32,424 acres, was approved for operation on May 10, 1957 and is scheduled for completion in 1962. Structural measures scheduled for installation during the fiscal year 1958 included the stabilization of 27 acres of critical erosion hazard areas and 4 miles of subwatershed waterway improvement. All of this work had been completed or was under contract as of June 30, 1958. Structural measures scheduled for installation during the fiscal year 1959 include 55 acres of critical area stabilization, 10 miles of subwatershed waterway development, one mile of roadside erosion control, two floodwater retarding structures, and 31,500 linear feet of stream channel improvement, which will complete 90% of the planned structural measures. Land treatment, estimated to cost \$546,816, is 50% complete and is well ahead of schedule. Of the 159 farms in the watershed, 148 are district cooperators and 106 have basic farm conservation plans. The total project cost is estimated at \$742,000 of which the local share is \$549,000. The project is sponsored by the Union County Soil Conservation District and co-sponsored by the Cypress Creek Watershed Conservancy District, the city of Sturgis, the Union County Drainage Board, Sturgis Industrial Corporation, Sturgis Kiwanis Club.

3. New Mexico-Dona Ana Arroyo Watershed

The structural works of improvement in this 6,950 acre watershed were completed in March, 1958, to protect about 700 acres of highly productive irrigated land, roads, a railroad, and other associated property from floods that formerly originated in the Dona Ana Arroyo Watershed. The structural works of improvement included 2 floodwater retarding structures with a combined capacity of 735 acre feet along with a mile-long disposal channel to conduct the discharge from the dams into an irrigation district drain emptying into the Rio Grande River. The disposal channel was a complicated installation in that it involved crossing a large irrigation canal, the Atchison-Topeka and Santa Fe Railroad, and



a State highway. Land treatment consists of maintaining proper grazing management on some 6,200 acres of watershed lands, most of which is administered by the Bureau of Land Management. The project, authorized June 26, 1956, was sponsored by the Elephant Butte Irrigation District.

4. New Mexico-Hatch Valley Arroyos Watershed

Three of the 6 planned floodwater retarding structures installed in this watershed were subject to several tests by severe rainstorms during the summer of 1957 and performed exceptionally well. The remaining 3 structures were installed late in the fiscal year 1958. The project provides protection to 800 acres of highly productive irrigated land from flood waters arising in six arroyos. Disposal channels were provided below each structure to conduct the discharge into canals or drains of the Elephant Butte Irrigation District. This project, sponsored by the Caballo Soil Conservation District, has the distinction of being the first to complete work on a contract that was awarded by a sponsoring local organization under the P. L. 566 watershed program. The entire watershed embraces 14,521 acres. The Bureau of Land Management administers 75% of the watershed land and will regulate grazing to aid range recovery.

5. Oklahoma-Long Branch Creek Watershed

The Long Branch Creek Watershed Project, embracing 27,316 acres of privately-owned lands, was approved for installation of works of improvement on March 19, 1956, and is expected to be completed in 1961. More than 70% of the planned land treatment measures, estimated to cost \$278,964, have been applied. The most significant practices are terracing, waterway development, seeding, and sodding. Of the 240 farmers in the watershed, 137 are district cooperators and 102 of them had developed basic conservation plans by June 30, 1958. Two of the five planned floodwater structures were completed in the fiscal year 1958. Contracts for the remaining three are expected to be awarded early in the fiscal year 1959. The project, sponsored by the Noble and Payne County Soil Conservation Districts, is estimated to cost \$624,000 of which the local share will be \$305,000.

6. Texas-Sulphur Creek Watershed

This project was authorized for operations August 23, 1957. On May 12, 1957, a storm occurred on Sulphur Creek, which caused direct flood damages of almost \$5,600,000 and resulted in the loss of five lives. The damages to the city of Lampasas from this storm were catastrophic. Damages were extremely severe in 68 cityblocks with residential and commercial property receiving major damage. Fifty homes were totally destroyed. Agricultural damages were also severe in the watershed. Newly planted crops were destroyed and



these areas received severe erosion damage. Numerous livestock were lost.

This flood was larger than any that had previously been studied. After it occurred, the Hill Country Soil Conservation District and the Lampasas Water Control and Improvement District No. 1, co-sponsoring organizations, requested additional study and subsequent revision of the work plan to include additional floodwater retarding structures to provide additional protection to property and people of Lampasas.

The plan proposes installing in a five-year period a project estimated to cost \$2,074,000, of which \$1,800,000 is Federal cost. Ten floodwater retarding structures are planned to be installed during a three-year period. As of July 1, 1958, project agreements have been executed on three floodwater retarding structures. It is estimated that contracts will be let on the remainder of the structural measures during the 1959 fiscal year. Local interest will bear the entire cost of operations and maintenance which is estimated at a capitalized value of \$19,769.

As of July 1, 1958, 119 of the 174 farmers and ranchers in the watershed were district cooperators and 94 of these had basic conservation plans. About 77 percent of the land in the watershed was under the district agreements and approximately 75 percent of the acreage under district agreements were covered by basic conservation plans. Planned conservation treatment is completed on 13 farms containing 5,611 acres. All of the terraces and ponds planned for the watershed have been installed. The cost of land treatment measures is estimated at \$169,000 of which the local share is \$152,700.

#### 7. Utah-Mill Canyon-Sage Flat Watershed

Mill Canyon has a long history of damaging floods, most of which have been the flash-flood type caused by heavy rains of short duration during the mid-summer months. Eleven major floods have occurred since 1898 causing extensive damages, mainly in the town of Glenwood. From the beginning the project has been an outstanding example of teamwork and cooperation among the local organizations and Federal agencies. This mountainous watershed of 15,296 acres has an ownership pattern of 3,525 acres of private lands, 820 acres of State land, 3,840 acres of land administered by the Forest Service, and 7,111 acres administered by the Bureau of Land Management. About 660 acres of the private land is intensively farmed irrigated cropland. A dual approach has been taken to solve the watershed problems. First, over 90% of the needed land treatment measures, comprising brush control, stockwater dams, proper range use, deferred grazing, seeding, fence construction, access road repair, roadside erosion control, and special purpose terraces have been applied. Second, the effectiveness of these practices is being supplemented by a floodwater

retarding dam completed in 1957. Channel improvement work was underway in the summer of 1958 to complete the planned structural measures. The sponsors, townspeople, and agencies concerned are well organized and enthusiastic over the project. This project will probably be finished well ahead of the originally scheduled completion date in 1962.

#### 8. West Virginia-Upper Grave Creek Watershed

The Upper Grave Creek Watershed project covers 4,920 acres and was approved for operation on January 11, 1956. Project installations will alleviate floodwater damage in and adjacent to the city of Cameron. The project is sponsored by the Northern Panhandle Soil Conservation District. Local people are enthusiastically backing this project. The total project cost is estimated at \$554,000, of which \$203,000 is the local share, including \$78,000 for the additional storage provided for municipal water supply.

Construction work on two floodwater retarding structures in the project was nearing completion at the close of the fiscal year 1958. The local sponsors plan to let three contracts for additional work in the fiscal year 1959 covering two more floodwater retarding structures, a multiple-purpose dam providing 77 acre-feet of municipal water storage, and 3.6 miles of channel improvement. Two additional floodwater retarding structures are planned for installation prior to 1961, the scheduled date for completion.

### LOANS AND RELATED EXPENSE

#### Loan Activities

Under Section 8 of Public Law 1018, 84th Congress, which amended Public Law 566 of the 83rd Congress, loans are authorized to be made to local organizations to defray the local share of the cost of watershed protection projects. The Farmers Home Administration makes loans under the provisions of this Act for watershed projects which have been approved for the installation of works of improvement. Since this law requires that all of the costs allocated for flood prevention purposes except the costs of easements and rights-of-way be paid from Federal funds, most of the loans are expected to be made for the local share of the cost of multiple-purpose projects. Project sponsors usually make local arrangements to secure funds needed for the costs of easements and rights-of-way and the costs of contract administration although some applications for loans have included funds for this purpose.

No loans will be made under this authority for the local costs of land treatment measures installed in the project primarily for watershed protection purposes even though the cost of these measures is usually a large share of the total cost of the project. These land treatment measures benefit the lands upon which they are applied and the costs are normally borne by the individual landowners rather than by the sponsoring organization although Federal cost-sharing and technical assistance is available for most of these measures through other Departmental conservation programs.



### First Loan Approved

The first loan under the authority of Section 8 of P. L. 1018, 84th Congress was conditionally approved in August, 1958, for the amount of \$35,000 to the Thorofare Meadow Company, a co-sponsor with the Locust Island Meadow Company and the Salem Cumberland Soil Conservation District of the Silver Lake-Locust Island Watershed project in Salem County, New Jersey. An amendment to the New Jersey State law during the last session of the State Legislature authorized tax levies whereby the loan can be repaid. Two large dikes with sluiceways will be constructed, providing both flood protection and drainage benefits to the members of these mutual non-profit Meadow companies. The total cost of the structural works is estimated at about \$182,000 of which the local share will be about \$35,000 including the cost of easements and rights-of-way and contract administration.

### Other Loan Applications

There were about 20 active applications for loans, totalling more than \$3,000,000, in various stages of counseling, investigation, and examination at the close of the fiscal year 1958.

Project sponsors of the Cowaselon Watershed Project, which lies about midway between Syracuse and Utica in Madison County, New York, applied for a loan to defray their share of the project costs soon after the project was authorized for construction on April 3, 1958. Planned structural measures to be installed over a 5-year period in this watershed include 5 floodwater retarding reservoirs, 1.7 miles of floodway construction, 2 grade stabilization structures and 35.9 miles of channel improvement. The costs of channel improvement work in the Oneida lakeplain area of the watershed, estimated at \$367,000, will be shared by the local sponsors in consideration of the drainage benefits to the landowners. The local share of the cost of all structural measures is estimated at about \$142,000, including contract administration, easements and rights-of-way, as well as part of the construction costs.

The Granite Soil Conservation District, Granite County, Montana, sponsors of the Lower Willow Creek Watershed Project, expect that funds obtained under the loan provisions of the Act will be required to finance the local share of the project costs. The structural measures in the watershed work plan include one supplemental irrigation supply reservoir, with a total storage capacity of 5,100 acre-feet, and a distribution canal with the necessary appurtenances. Federal installation costs of these structures is estimated at \$253,830 and local costs at \$292,520, including the costs of easements, rights-of-way and contract administration and the local share of the construction costs allocated for agricultural water management. The storage of surplus floodwater will provide supplemental irrigation water to 3,134 acres of crop and pasture land, reduce floodwater damage and provide significant other benefits. All structures will be built and operated by a drainage district to be organized under State law with specific authority to construct, operate and maintain the works of improvement, to acquire land and easements and to make assessments and issue bonds for carrying out programs of improvement authorized under P. L. 566.



Works of improvement planned in the Thompson Creek Watershed in Weakley and Henry Counties, Tennessee, include 734 acres of tree planting to stabilize critical sediment producing areas, 3 floodwater retarding structures and 69,900 linear feet of channel improvement work. About 4,000 linear feet of the channel work will provide drainage benefits to local landowners for which they will be assessed a share of the construction costs. The Thompson Creek Watershed District, a co-sponsor of the project with the Weakley County and Henry County Soil Conservation Districts, has applied for a loan of \$20,000 to help finance the local costs of the work. The project will be installed over a 5-year period. Operation costs and loan repayments will be defrayed by taxation by the watershed district as provided by State law.

### SURVEYS AND INVESTIGATIONS OF WATER RESOURCES

#### Agency Participation

Funds for surveys and investigations of river basin areas for inter-agency program coordination purposes have been allocated to the participating agencies in the Department as follows:

Agency	: 1958	: 1959	: 1960
	: Obligations	: Estimate	: Estimated
Soil Conservation Service .....	: \$540,173	: \$736,536	: \$743,536
Forest Service .....	: 63,643	: 62,000	: 62,000
Agricultural Research Service ...	: 158,545	: 201,464	: 194,464
Total .....	: 762,361	: 1,000,000	: 1,000,000

#### River Basin Activities

Section 6 of the Watershed Protection and Flood Prevention Act (P. L. 566, 83d Congress), as amended, authorizes the Secretary of Agriculture to cooperate with other Federal, State, and local agencies in making surveys and investigations of the watersheds of rivers and other waterways as a basis for the development of coordinated programs.

The Department is represented on the Inter-Agency Committee on Water Resources which has been established to facilitate the coordination of water and related land resource activities by the various member Federal departments and agencies. Much of the actual coordinating work is done in the field. The Department maintains representation on various River Basin Inter-Agency Committees, which serve as points of contact between representatives of this Department and of other Federal departments and agencies and the States in these basin areas, to keep all concerned mutually informed of the activities of the member agencies and to facilitate matters of inter-agency coordination. The Department in 1958 maintained such representation on Committees in the

Arkansas-White-Red, Columbia, Missouri, Northeast and Pacific Southwest areas. In addition, the Department is participating in special cooperative surveys and investigations in the following river basin areas:

1. Cape Fear River Basin - North Carolina

The Department is cooperating with the Corps of Engineers and the State of North Carolina in a survey of the Haw River (a tributary of the Cape Fear River) basin to develop information on economically feasible water storage opportunities. Sufficient examination also is to be made of other tributaries of the Cape Fear River to ascertain the effects of possible projects and measures therein which might have a relationship to and impact on possible plans for the Haw River Basin. Information developed will be used to show the needs for agricultural, industrial, municipal, recreational and other water resource development in the Haw River basin; various economically feasible development possibilities on the Haw, the nature, degree and location of benefits to be provided by such developments within the Haw basin and downstream; and estimates of the costs of and benefits from such developments. Most of the work on this survey probably will be completed during the fiscal year 1959.

2. Delaware River Basin - New York, New Jersey, Pennsylvania and Delaware

The Department is cooperating with the Corps of Engineers in a survey and investigation of the watershed of the Delaware River in New York, New Jersey, Pennsylvania and Delaware. It is assisting in the preparation of a basin water resources report based on a projection of some 100 years. The Soil Conservation Service, Forest Service, and Agricultural Research Service are participating in the study. Some funds made available under this appropriation item have been used, but most of the cost of participation in the survey has been financed by the Corps of Engineers.

Information is being developed on the present and estimated future water requirements for domestic, livestock, irrigation and other rural uses; on storage sites in small watersheds that might be developed and other measures that might be installed to help meet those rural needs; on the effect of land treatment and structural measures for flood prevention and watershed protection on high and low stream flows and on sedimentation; and on the impact of possible reservoir inundation upon agricultural production capacity and resources. Present schedules contemplate completion of this survey in the fiscal year 1960.

3. Potomac River Basin - Maryland, Pennsylvania, Virginia and West Virginia

In cooperation with the Corps of Engineers, the Department is participating in a survey and investigation of the Potomac River watershed in Maryland, Pennsylvania, Virginia and West Virginia. It is assisting in the preparation of a basin water resources report based



on a projection of some 50 years. The Soil Conservation Service, Forest Service and Agricultural Research Service are participating in the study.

Information is being developed on the present and estimated future water requirements for domestic, livestock, irrigation, municipal, recreation and other rural needs for water; on storage sites in small watersheds that might be developed and other measures that might be installed to help meet those rural needs; on needed land treatment measures; and on the effect of land treatment and structural measures for flood prevention and watershed protection in small watersheds on floodwater and sediment damages. Present schedules contemplate completion of the survey in the fiscal year 1961.

4. Upper Mississippi River and Great Lakes Basin Areas

The Soil Conservation Service is cooperating with various field offices of the Corps of Engineers in the Upper Mississippi River and Great Lakes basin areas to determine the effect upon agricultural lands and crops of proposed major drainage projects of the Corps of Engineers. Reports have been completed on the following projects: Flatrock Creek and Little Auglaize River in Ohio, Warroad River and Bulldog Creek, Roseau County, Minnesota, and Au Gres River, Michigan, and survey work is under way on others.

5. Lower Mississippi River and Tributaries Project

The Department has completed its participation with the Mississippi River Commission in the review of the Corps of Engineers' Lower Mississippi River and Tributaries Project except for consultations with representatives of the Commission about the use of agricultural data supplied them. A summary report on agricultural material developed by the Department during the survey is being prepared and is expected to be completed in the fiscal year 1960.

6. Upper Colorado River Storage Project Participating Projects

The Department is cooperating with the Department of the Interior in a reappraisal of the direct agricultural benefits expected to be produced by the participating projects of the Colorado River Storage Project. Survey work is progressing in accordance with schedules established by the Bureau of Reclamation. The impacts of that project upon lands and improvements administered by this Department and the relationship between features and appurtenances of the projects surveyed and the watersheds in which they are situated also have been considered. The Soil Conservation Service, Forest Service, and Agricultural Research Service are the primary Department agencies participating in the work under this item. The Land Grant Colleges are also taking an active part in the work. Representatives of the



Farmers Home Administration and the State Agricultural Stabilization Committee and of various State agencies have provided valuable information and advice.

Reports have been completed and transmitted to the Secretary of the Interior and the Director, Bureau of the Budget, on the Vernal Unit of the Central Utah Project in Utah and on the Paonia Project in Colorado. Reports also have been completed and transmitted to the Secretary of the Interior on the Hammond Project in New Mexico and Smith's Fork Project in Colorado. A field draft report has been completed on the Seedskadee Project in Wyoming. Much of the soils and other data have been obtained about the Emery County Project in Utah and the Silt and Florida Projects in Colorado.

7. Kansas River Basin - Kansas

The Department is cooperating with the Kansas State Water Resources Board in a survey of that portion of the Kansas River Watershed that lies in the State of Kansas to develop information on economically feasible upstream water storage opportunities for agricultural and other local uses and for flood prevention purposes. This information is to be used by the State of Kansas in the preparation of water-economic budgets for the use and development of its water resources. It will be used by this Department in connection with the development of work plans for small watersheds under the provisions of the Watershed Protection and Flood Prevention Act. Most of the work on this survey is expected to be completed in the 1959 fiscal year.

8. Yazoo-Mississippi River Basin - Mississippi

In cooperation with the Board of Water Commissioners of the State of Mississippi, work has been started on a survey and investigation of the Yazoo-Mississippi alluvial flood plain and the Yazoo-Tallahatchie River Watershed, which drains into the flood plain below four Corps of Engineers flood control reservoirs. Information is being developed to be used by the Soil Conservation Service in coordinating its watershed and other programs with soil conservation districts and other local organizations, agencies of the Mississippi State Government, and other Federal agencies. The information will be used by the Board of Water Commissioners in planning and administering the physical aspects of water use and management in the Yazoo-Mississippi River basin. Present schedules indicate that the survey will be completed in the fiscal year 1960.

9. Des Moines River Project - Iowa

A cooperative survey with the Corps of Engineers of the watershed of the Des Moines River above the Red Rock dam site in Iowa has been undertaken and completed. The survey was for the purpose of estimating the potential effects of a possible watershed improvement program upon

peak floods of the river near the Red Rock dam site. Due to the relatively flat topography of large portions of the watershed, as a result of which opportunities for storage of only relatively small amounts of runoff would be possible, the survey indicated that the effect of a possible watershed improvement program on peak flows would be quite limited.

10. Other Cooperative Surveys

In addition to those completed or under way, there are prospects for cooperation in surveys and investigations in the watersheds of the Susquehanna River in New York and Pennsylvania, the Tar River and the Neuse River both in North Carolina, of a group of river basins in Georgia, Florida, Alabama and South Carolina, and of a group of river basins in Texas.





(c) Flood Prevention

Appropriation Act, 1959, and base for 1960 .....	\$18,000,000
Budget Estimate, 1960 .....	<u>15,000,000</u>
Decrease (in level of installation of works of improvement in authorized Flood Prevention Watersheds) .....	<u>-3,000,000</u>

PROJECT STATEMENT

Project	1958	1959 (estimated)	Decrease	1960 (estimated)
1. Works of improvement ..	\$13,426,335	\$18,000,000	-\$3,000,000(1)	\$15,000,000
Total pay act costs				
(P.L. 85-462) .....	[205,221]	[520,200]	[-10,000]	[510,200]
Subtotal .....	<u>13,426,335</u>	<u>18,000,000</u>	<u>-3,000,000</u>	<u>15,000,000</u>
1957 appropriation				
available in 1958 .....	-1,582,697	- -		
1958 appropriation				
available in 1959 .....	<u>1,376,362</u>	- -		
Total appropriation				
or estimate .....	<u>13,220,000</u>	<u>a/18,000,000</u>		

a/ In addition \$1,376,362 is available from prior year balances.

DECREASE

(1) The proposed decrease of \$3,000,000 in the average rate of installation of works of improvement in authorized flood prevention projects gives recognition to the over-all conservation effort of the Department, which will continue to be maintained at a substantial level. Although a decrease of \$3,000,000 from the 1959 base is proposed, the estimate for 1960 is \$1,780,000 above the 1958 appropriation and above any annual program level prior to 1959. The 1959 budget estimate and appropriation were increased over previous levels as an anti-recession measure.

As shown in the following table, the 1960 estimate would provide for substantial installations of works of improvement in each of the eleven authorized watersheds and is consistent with the readiness and ability of the local people to proceed with their share of the planned work.

Personnel not required for installation services at the rate programmed for 1960 would be transferred to other work of the Service or vacancies created by turnover would not be filled.

Distribution of Funds to Watersheds

Watershed	Total Availability					
	1958	Total Available	Balance carried forward	1959	1960	
(1)	(2)	(3)	(4)	(5)	(6)	
Buffalo Creek, New York .....	\$334,948	\$384,735	\$48,735	\$336,000	\$273,000	
Colorado (Middle), Texas .....	1,529,682	2,043,575	43,575	2,000,000	1,626,000	
Coosa, Ga., Tenn. ....	583,620	811,888	24,888	787,000	640,000	
Little Sioux, Iowa, Minn. ....	981,044	908,543	-3,457 1/	912,000	741,000	
Little Tallahatchie, Miss. ....	872,406	1,081,396	145,396	936,000	765,000	
Los Angeles, California .....	1,055,814	1,551,974	490,974	1,061,000	1,205,000	
Potomac, Md., Pa., Va., W. Va. ....	495,000	1,209,757	293,757	916,000	745,000	
Santa Ynez, California .....	167,288	415,750	14,750	401,000	227,000	
Trinity, Texas .....	2,778,213	3,691,007	16,007	3,675,000	2,987,000	
Washita, Oklahoma .....	2,874,738	4,303,862	-31,138 1/	4,335,000	3,576,000	
Yazoo, Mississippi .....	1,676,923	2,673,875	332,875	2,341,000	1,915,000	
Emergency Measures .....	76,659	300,000	- -	300,000	300,000	
Total .....	13,426,335	19,376,362	1,376,362	18,000,000	15,000,000	

1/ Due to payment of retroactive pay costs for the fiscal year 1958, obligations for the Little Sioux and Washita projects exceeded the total available for those projects in 1958 by the amounts of \$3,457 and \$31,138 respectively. This had the effect, therefore, of charging such amounts to the funds available for these projects in 1959.

## STATUS OF PROGRAM

### Current Activities:

The Flood Control Acts provide (1) for control of floods by main-stream control works for which the Department of the Army is responsible and (2) for the reduction of floodwater, sediment, and erosion damages and the prevention of floods by installation of watershed improvement measures for which the Department of Agriculture is responsible. The work of this Department under this item is carried on in the eleven watersheds authorized by the Flood Control Act of 1944. It consists of:

(a) the preparation of detailed subwatershed or functional work plans which specify the kind of improvements to be installed for flood prevention, their location, and the work schedule,

(b) the installation of works of improvement, such as diversions, dikes, gully-stabilizing and water retarding structures, debris and desilting basins, floodways, stream-channel improvement, fire protection and woodland improvement measures, etc., to reduce flood, erosion, and sediment damage and retard runoff and control its movement into the main streams, and

(c) the acceleration of land treatment measures to prevent erosion and protect the structural works of improvement from flood and sediment damage. Proposed improvements by the Department are correlated with and designed to protect main-stream work by the Corps of Engineers, the Bureau of Reclamation, and others, in addition to providing protection to the watershed lands and property above the main-stream works.

The proper and continued maintenance of installed measures is the key to the long-time effectiveness of the watershed improvement programs. Land-owners and operators generally maintain conservation and other measures which benefit primarily the lands upon which they are installed. Local units of Government have the responsibility to maintain the measures which provide primarily off-site benefits.

### Program Assignments

The Soil Conservation Service has general responsibility for administration of the work of the Department authorized under the Flood Control Acts. The Soil Conservation Service and the Forest Service carry out the planning and installation of flood prevention works of improvement and land treatment measures in the authorized watersheds. The Forest Service activities are concerned with (a) all national forests and other lands in the authorized watershed that are administered by the Forest Service, (b) all range land in or adjacent to national forest and used in conjunction with such forests under formal agreement with the landowner, and (c) certain specialized technical assistance on other forest lands within the watersheds. The Soil Conservation Service activities are concerned with all other private and public lands in the watersheds.



Examples of Recent Progress:

Allocation of Funds for Works of Improvement

Funds available for planning and installation of flood prevention works of improvement are allocated between the Soil Conservation Service and the Forest Service as follows:

Agency	1958 Obligations	1959 Funds Available	1960 Estimate
Soil Conservation Service ..	\$11,557,491	\$16,903,718	\$12,965,000
Forest Service .....	1,792,185	2,172,644	1,735,000
Emergency Measures .....	76,659	300,000	300,000
Total .....	13,426,335	19,376,362	15,000,000

a/ Includes \$1,376,362 of unobligated balances brought forward from 1958

The following table provides a breakdown by watersheds of the allocations for 1959 and 1960 shown below:

Watershed	1959 Funds Available			1960 Budget Estimate		
	Agency Distribution			Agency Distribution		
	SCS	FS	Total	SCS	FS	Total
1. Buffalo Creek, N.Y.:	378,609	6,126	384,735	272,700	300	273,000
2. Colorado (Middle) :						
Texas .....	2,043,575	--	2,043,575	1,626,000	--	1,626,000
3. Coosa, Georgia, :						
Tennessee .....	750,543	61,345	811,888	614,000	26,000	640,000
4. Little Sioux, :						
Iowa, Minnesota :	908,543	--	908,543	741,000	--	741,000
5. Little Talla- :						
hatchie, Miss. .. :	846,678	234,718	1,081,396	565,000	200,000	765,000
6. Los Angeles, :						
California .....	556,235	995,739	1,551,974	415,000	790,000	1,205,000
7. Potomac, Maryland :						
Va., Pa., W.Va. . :	1,159,945	49,812	1,209,757	711,300	33,700	745,000
8. Santa Ynez, Calif.:	235,873	179,877	415,750	90,000	137,000	227,000
9. Trinity, Texas .. :	3,691,007	--	3,691,007	2,987,000	--	2,987,000
10. Washita, Oklahoma :	4,303,862	--	4,303,862	3,576,000	--	3,576,000
11. Yazoo, Mississippi:	2,028,848	645,027	2,673,875	1,367,000	548,000	1,915,000
12. Emergencies a/ :	300,000	--	300,000	300,000	--	300,000
Total .....	17,203,718	2,172,644	19,376,362	13,265,000	1,735,000	15,000,000

a/ Under authority of Section 216 of the Flood Control Act of 1950, not to exceed \$300,000 may be expended each fiscal year for emergency measures when a fire,

flood or any other natural element or force has caused a sudden impairment of the watershed. This amount is not included in the amounts proposed for distribution to the individual watersheds. However, any balances not needed for emergency measures as provided by the Act are distributed later in the year to those watersheds where the greatest need exists and where the local people have provided easements and rights-of-way to permit installation of additional works of improvement.

### Watershed Work Plans

The Department, in cooperation with soil conservation districts, watershed organizations, and other local, private, and public agencies, is planning and installing watershed improvement measures in all eleven of the authorized watersheds. To provide consistency between the Flood Prevention Program and the Watershed Protection Program (P. L. 566, 83rd Congress, as amended) of the Department, which have similar objectives, the planning criteria, economic justifications, local sponsorship requirements, cost-sharing, structural limitations and other procedures and policies used in the Flood Prevention Program have been adjusted to generally parallel those of the Watershed Protection Program insofar as possible within the provisions of the Flood Control Acts.

As of June 30, 1958 work plans had been developed for 16,393,652 acres or about 53 percent of the 30,102,774 acres in the authorized portion of the watersheds. During 1958 work plans were developed for 8 subwatersheds and one area within a subwatershed.

### Works of Improvement Installed

The following table lists some of the major watershed works of improvement which were installed cooperatively by the Department agencies and local cooperators in 1958, and those planned to be installed in 1959 and 1960:

Type of Improvement	Unit	On the Land : 6/30/58	1958 : Actual	1959 : Estimate	1960 : Estimate
1. Floodwater retarding structures .....	Number	582	131	226	200
2. Stabilization and sediment control structures:					
(a) Structures .....	Number	7,498	988	283	272
(b) Debris and desilting basins ..	Number	246	1	933	686
(c) Detention terraces .....	Mile	619	140	64	58
3. Subwatershed waterway improvement .....	Mile	11	-	38	27
4. Stream channel improvement .....	Mile	1,226	113	163	159
5. Diversion ditches and dikes .....	Mile	819	63	166	82



Type of Improvement	Unit	On the Land 6/30/58	1958 Actual	1959 Estimate	1960 Estimate
6. Floodways (channel excavation).....	Mile	19	--	1.5	0.6
7. Stabilization of critical runoff and sediment producing areas:					
(a) Roadside erosion control.....	Mile	2,676	195	224	116
(b) Revegetation .....	Acre	252,477	36,468	6,976	5,673
8. Fire Protection:					
(a) Fire control trails and breaks....	Mile	615.6	33.0	39.0	50.0
(b) Structures.....	Number	126	1	3	2
(c) Heliports and helispots .....	Number	366	60	20	20
(d) Mobile equipment ...	Number	23	1	1	1
9. Communications facilities :					
(a) Permanent radio installation .....	Number	199	6	7	6
(b) Telephone lines.....	Mile	223	28	-	-

#### Progress in Individual Authorized Watersheds

The following paragraphs give a description of the work being conducted in each of the eleven authorized watersheds and progress being made:

##### Buffalo Creek Watershed, New York

Total Estimated Federal Cost ..... \$4,671,954  
Total Obligations through June 30, 1958 ..... 2,886,250

This flood prevention project is located in the extreme western part of the State and covers an area of 437 square miles in Erie and Wyoming Counties, including 21 square miles within the City of Buffalo. The principal purpose of the project is to reduce the amount of sedimentation flowing into Buffalo Harbor.

Most of the sediment comes from the eroding banks of the principal streams flowing into Buffalo Harbor. The principal method of stabilization is sloping and shaping the eroding bank and placing a layer of quarried stone riprap on the lower portion of each bank to about the level of the average annual flood. A total of 172,563 square yards have been placed since 1949.

The project is more than 50% complete. Structural measures are expected to be completed about 1965, and land treatment measures are expected to require another ten years. Some of the economic benefits of the installed land treatment and structural work is demonstrated by the steadily decreasing volume and cost of dredging sediment from Buffalo Harbor. Necessary dredging to maintain shipping channels has decreased from 221,000 cubic yards in 1949 to 140,000 cubic yards in 1957, even though no sediment was dredged in 1956.



To date, 1,376 of the 3,890 rural landowners in the watershed have become cooperators with the Erie and Wyoming Soil Conservation Districts. Accomplishments include 5,212 acres of pasture planting, 9,184 acres of permanent hay, 9,559 acres of tree planting, 2,173 acres of wildlife improvement, 407 farm ponds, 35.7 miles of open ditches and 20.4 miles of tile drains.

Special New York State legislation was required to set up a Joint Board of Directors from the two soil conservation districts sponsoring the project. Each county annually contributes its share of a \$5,000 addition to the maintenance fund. Some maintenance has been necessary, of course, and the Joint Board has expended \$15,425.18 during a five-year period in which three floods of less than 2% probability occurred.

Middle Colorado River Watershed, Texas

Total estimated Federal cost ..... \$29,870,697  
Total obligations through June 30, 1958 ..... 5,554,382

This watershed comprises 4,408,000 acres in the middle section of the Colorado River Watershed of Texas. Practically all the land within the watershed is privately owned.

This watershed has been divided for planning purposes into 14 subwatersheds. Seven of these subwatersheds, covering 2,652,630 acres, have been planned. However, one subwatershed which comprises 465,600 acres is being replanned to eliminate flood prevention structures having greater than 5,000 acre-feet detention storage capacity.

Until the past year, this entire watershed was plagued by drought for seven years, however, good progress is being made in the application of land treatment practices. Of the 8,043 farmers and ranchers in the watershed, 5,088 are district cooperators. About 79 percent of these cooperators have basic conservation plans, covering 77 percent of the acreage in agreements, on their farms and ranches. The total land in agreements is about 73 percent of the total acres in the watershed. On 730 farms and ranches, containing 253,500 acres, conservation treatment has been completed. The following land treatment practices were on the ground July 1, 1958:

Cover cropping .....	42,504 Acres
Range seeding .....	18,639 Acres
Pasture planting .....	10,533 Acres
Terracing .....	13,269 Miles
Diversion construction .....	1,199 Miles
Pond construction .....	8,541 each
Waterway development .....	1,210 Acres

On July 1, 1958, 54 floodwater retarding structures, 5.2 miles of floodways and 5.08 miles of floodwater diversions were completed or under construction in the Middle Colorado River Watershed. All planned floodwater retarding structures have been completed in the Deep Creek subwatershed.

During fiscal year 1959, 13 floodwater retarding structures and 45 miles of channel improvement will be contracted for construction in Brady Creek, Lower San Saba River, Clear Creek, Jim Ned Creek and Mukewater Creek subwatersheds.

The local people have moved ahead in securing all needed easements, rights-of-way and road and utility changes ahead of construction. Most of the easements have been secured on the 10 floodwater retarding structures in Mukewater Creek subwatershed and the 8 structures in the upper construction unit of Jim Ned Creek subwatershed. Progress is being made by the local people to set up legal means to finance the cost of operation and maintenance of the structural measures installed or planned for installation in the watershed.

Coosa River Watershed, Georgia and Tennessee

Total estimated Federal cost ..... \$8,147,053  
Total obligations through June 30, 1958 ..... 2,564,527

Work began on this project in 1946. It covers approximately 1,273,158 acres and is divided into seventeen subwatersheds for planning and applying the watershed program. Approximately 85% is privately owned and 130,350 acres is national forest land. It is sponsored by the four soil conservation districts in the watershed, the Atlanta, Coosa, Limestone Valley, and Upper Chattahoochee River Soil Conservation Districts.

Subwatershed work plans have been completed on six of the subwatersheds and the planned program is being applied in these subwatersheds. During the 1958 fiscal year, 10 floodwater structures were completed and 7 additional were under contract. To date, 33 have been completed. Channel improvement has been completed on 32 miles of channel and 310 miles of roadside erosion control has been established. Fifteen floodwater retarding structures will be constructed during the 1959 fiscal year.

Land treatment work has progressed on schedule. Of the approximately 2,500 farmers in these subwatersheds, 1,842 owning 171,181 acres, have become district cooperators. Basic farm conservation plans have been completed by 1,435 landowners. District cooperators have applied 263 miles of terraces, seeded 23,758 acres of pasture, and 20,462 acres of other perennial vegetation. They have also constructed 273 farm ponds and improved 5,146 acres of pasture. Trees have been planted on 1,459 acres.

Little Sioux Watershed, Iowa and Minnesota

Total estimated Federal cost ..... \$25,568,552  
Total obligations through June 30, 1958 ..... 9,069,688

The Little Sioux Watershed is 135 miles long and at its greatest width is 50 miles. The lower or south two-thirds of the watershed uplands, comprising 1,714,000 acres, constitutes the area authorized for flood prevention assistance. The authorized area is made up of soils of loessal origin where wind-



blown materials are commonly found to be as much as 25 to 50 feet in depth and frequently 100 feet or more. Sheet and gully erosion are severe problems in this area. Gullies commonly are found to be 20 to 40 feet in depth and have developed to over 50 feet in depth in many instances. The valley floor sections of many of the small tributaries are being rapidly destroyed by severe gully erosion. This damage has great effect on the agricultural economy of the watershed since these valley floor sections are the most fertile areas in the watershed. A 300 square mile area of Missouri River bottomlands frequently is damaged because of heavy sediment loads from the upland tributaries and because of frequent flooding.

Eight soil conservation districts are principally concerned with execution of the authorized program. In total, twelve soil conservation districts located in Iowa have some interest in the program and help make up the Little Sioux Works Committee, which provides over-all guidance and establishes priorities for assistance under the program. The District Commissioners, as well as the Little Sioux Works Committee, continue to give their attention to guiding the program and they have now recognized the need for increasing information and educational work and are making plans accordingly.

Agricultural Stabilization and Conservation Committees, at both State and county levels, have continued to give strong support to the Little Sioux program and have used many suggestions of the District Commissioners and others in setting up County Agricultural Conservation Programs. In many cases ACP funds are set aside especially to assist with permanent type practices essential to adequate protection of watershed lands.

There have been 34 subwatershed work plans covering an area of 64,409 acres prepared to date. Work plans for 2 more subwatersheds are pending final approval and work is underway on 4 more. The principal accomplishments for the 1958 fiscal year and cumulative through June 30, 1958.

<u>Structural Measures for Flood Prevention</u>	<u>Unit</u>	<u>Applied In Fiscal Year 1958</u>	<u>Applied through 6/30/58</u>
Floodwater retarding structures	Number	15	141
Stabilizing structures	Number	14	274
Grassed waterways	Acre	12.1	74
Channel improvements	Mile	4.4	61
Diversions	Mile	0.8	13
Dike Construction	Mile	1.0	15
Dike Construction	Cu. Yd.	3,651	244,373
Floodway	Mile	.28	9
Floodway	Cu. Yd.	3,651	283,353
Detention terraces	Mile	140.3	619
Earthwork	Cu. Yd.	396,416	6,054,038
Reinforced concrete	Cu. Yd.	1,304.7	20,532



On June 30, 1958, 3,461 farmers with 643,442 acres of land were cooperators with the soil conservation districts sponsoring the project. Of this number, 2,505 had completed basic farm conservation plans for their 473,547 acres of farm land in the watershed. The principal land treatment measures installed were as follows:

	<u>Unit</u>	<u>Applied In Fiscal Year 1958</u>	<u>Applied through 6/30/58</u>
Terracing	Mile	336.2	2,662
Waterways	Acre	173	3,469

Rain storms as heavy as 5" to 6" have hit isolated locations in the watershed during the past year. Field observations reflect all practices functioning pretty much as expected. A recent rain of approximately 5" fell in the McDonald subwatershed where basin terraces had just been constructed. As a result it was necessary to make minor repair jobs on ten terraces. Several observations were made where cropland terraces withstood rains of 4" to 6" without suffering any appreciable damage. Basin terraces have been used in the watershed for approximately 5 years. Once these terraces have aged at least one year, there is no problem in handling the runoff for which they were designed. In the past, farmers have encountered problems in establishing satisfactory vegetation on the basin terraces. However, favorable weather conditions during the past year has helped immeasurably and a good percentage of the total basin terraces in the watershed are now covered with fairly good stands of vegetation.

Little Tallahatchie River Watershed - Mississippi

Total estimated Federal cost ..... \$14,297,289  
Total obligations through June 30, 1958 ..... 5,638,307

This watershed project has a total area of 1,506 square miles, including 98,250 acres in the Sardis Reservoir purchase area. The Forest Service administers approximately 99,000 acres of forest lands in the Holly Springs National Forest. The Tallahatchie River Soil Conservation District covers the entire project. Approximately 45 percent of the watershed is in forest, 25 percent in cropland, 9 percent in pasture, 14 percent idle land, and 7 percent miscellaneous use.

The watershed was originally divided into 54 minor watersheds and minor watershed plans had been completed on 39. These are being revised into 16 sub-watershed work plans. Three subwatershed plans have been completed. Legally organized Water Management Districts will sponsor these plans along with the soil conservation district. There are 10 legal organizations in the watershed with planning being rapidly completed on two and applications on file for planning on three others.

There are 6,453 farm operating units in the watershed of which 4,038 are district cooperators with basic plans completed on 3,025 units.

Reforestation has been given a high priority in land treatment with 54,000 acres of the required 206,000 already planted. Another 35,000 acres of critical areas have been planted in grasses and legumes. 539 miles of eroding roadsides have been treated.

About 150 floodwater retarding structures are needed. Five have been installed and eight were under contract at the end of the 1958 fiscal year. Easements for 20 structures to be installed during the 1959 fiscal year have been obtained. Over 2,200 sediment control structures have been installed in the watershed to date.

Los Angeles River Watershed - California

Total estimated Federal cost .....	\$19,350,496
Total obligations through June 30, 1958 .....	9,329,574

The plans for this Flood Prevention Project provide for installation of works of improvement within the Los Angeles River Watershed to supplement flood control improvements on the principal river channels and tributaries as planned under the programs of the Corps of Engineers and various local agencies. The work is being planned and constructed cooperatively by the Department of Agriculture, the Los Angeles County Flood Control District, and many other local and State agencies including the City of Los Angeles and the San Fernando Valley Soil Conservation District.

The Department of Agriculture's responsibilities on the Federal lands of the mountainous Angeles National Forest are carried out through the Forest Service. Works of improvement which the Soil Conservation has responsibility for installing are generally confined to the San Fernando Valley portion of the watershed, this valley being, at the time the project was authorized, the principal agricultural area of the watershed. Planned works of improvement included both land treatment measures and flood control improvements on minor channels traversing the broad valley from the foothills to the Los Angeles River. In prior years land treatment measures have been installed principally under the regular soil conservation district program with the Service furnishing technical assistance to farmer-cooperators of the San Fernando Valley Soil Conservation District. In recent years, due to the rapidly expanding urbanization in the San Fernando Valley, many of the areas



Where land treatment measures had been installed have been subdivided for housing and other non-agricultural developments. Today, practically all land treatment work consists of street drainage and storm drains planned and constructed entirely by local agencies.

Minor channel improvements under this program are planned and constructed cooperatively by the Soil Conservation Service and the Los Angeles County Flood Control District as the principal local cooperating agency. Installation costs are shared equally, with the Flood Control District furnishing all rights-of-way, bearing all costs to connection with the relocation of utilities and replacement of bridges and other crossings, and assuming responsibility for operation and maintenance. Minor channel improvements which formerly served as needed outlets for land treatment measures now serve a similar function as outlets for critical and urgently needed street drainage and storm drain systems and are thus of the utmost importance to this rapidly expanding community.

To date 14.5 miles of streambank and channel stabilization have been completed together with 21.2 miles of channel capacity improvement at a Federal expense for capital improvements of approximately \$1,100,000. Total local expenditures, exclusive of rights-of-way but including bridge construction, have amounted to nearly twice the Federal expenditures. Work is currently under way on a contract involving 2.3 miles of channel improvement at a bid price of \$442,630, the Federal share of which is \$124,860. This work, awarded in January 1958, is scheduled for completion in December 1959. Two other contracts had been proposed for construction during the summer of 1958 for 2.8 miles of channel improvement, the estimated Federal cost of which approximates \$300,000. A disastrous fire in June 1958 at the project office of the Soil Conservation Service severely damaged much of the design work and the plans for these projects and it has, therefore, been necessary to reschedule these improvements for the 1959 construction season.

Four additional units of channel improvement, involving approximately 7-1/2 miles, are all that remain to complete the Soil Conservation Service portion of the Los Angeles River Watershed Program.

The Big Santa Anita channel stabilization project on the Angeles National Forest part of the watershed was the major new project undertaken by the Forest Service during the 1958 fiscal year. The survey work in the more than ten miles of channel bottoms was completed by the Los Angeles County Flood Control District. In all 70 dams were located. An access road into the bottom of Big Santa Anita Canyon was required for construction purposes. By the end of the year the road construction work was 85% complete. Survey work was completed for 2.9 miles of additional access roads needed for further channel stabilization construction.

In conjunction with the Big Santa Anita Canyon access road a new fire suppression station was developed at Chantry Flats. A contract was let for the construction of two three-bedroom residences for the Chantry Flats suppression crew foreman and Santa Anita prevention patrolman. Plans were



prepared for the addition of one new special fire crew foreman's residence at the Arroyo Seco Ranger Station and two new residences at the Chilao Fire Suppression Station for the Chilao crew foreman and helicopter attack crew foreman. Contracts were let for these new buildings. Four new 5,000 gallon concrete water tanks were built at strategic locations for storage of water for fire emergency.

Approximately four miles of Monrovia Canyon Road and two miles of Gold Creek Road were stabilized by building retaining walls and providing adequate drainage.

The nursery at Oak Grove Park continues to operate at full capacity to furnish shrubs and trees for flood prevention projects. Twenty five acres in the Arroyo Seco drainage were planted with new species of drouth resistant shrubs.

Damage to the Los Angeles River watershed by wild fires was held to a minimum during the past year. Only seven man-caused and two lightning-caused fires were reported for the entire period. Prompt action by fire suppression forces confined the area burned on all fires to less than one acre. Two very important fire preparedness projects were continued and greatly expanded during the year. The first and probably the most important was the fire pre-planning work, which consisted of field surveying, line construction, sign posting, and preparation of field notes with new maps to correspond. Fire pre-planning has proven most effective in controlling fires and the highly valued watershed areas have been more extensively pre-planned than was originally proposed. The second important project is continuation of the development of the use of helicopters. The helicopter has become a rather universal tool in California fire control activities.

Rainfall for the year was well above normal, but at no time were the storms intense enough or long enough to create extensive damage-causing floods. No channel structures were damaged by the runoffs and all performed as intended.

Potomac River Watershed, Md., Pa., Va., W. Va.

Total estimated Federal cost.....	\$15,510,070
Total obligations through June 30, 1958.....	2,132,652

The authorized project area includes 4,205,400 acres of the Potomac River watershed above Hancock, Maryland, in the States of Maryland, Pennsylvania, Virginia, and West Virginia. Subwatershed work plans have been prepared and the installation of works of improvement is underway in the South River

subwatershed in Virginia and the New Creek-Whites Run and the Warm Springs Run subwatersheds of West Virginia which encompasses 200,172 acres. Plans have been virtually completed for two tributaries in the North River subwatershed of Virginia, totalling 82,646 acres, and the installation of works of improvement is scheduled during the 1959 fiscal year. Subwatershed work plan development is continuing in cooperation with local sponsoring groups in the North River subwatershed in Virginia, the South Fork in West Virginia and the George's Creek subwatershed in Maryland.

Land treatment measures are being planned and applied on the farm lands of the subwatershed in cooperation with the Shenandoah Valley Soil Conservation District in Virginia and the Potomac Valley and Eastern Panhandle Soil Conservation Districts of West Virginia. These districts also sponsor the Flood Prevention Program in the subwatersheds, coordinate the work of the other local groups and organizations, obtain easements and rights-of-way for and maintain the completed structural measures.

The planning and application of land treatment measures is not progressing as fast as was planned. Active farming has been discontinued in parts of the watershed, resulting in substantial amounts of natural revegetation and protection from erosion. Technical services in forestry have been provided through the State Forestry Agencies in cooperation with the Forest Service.

Current plans for the subwatersheds provide for the installation of 39 floodwater retarding structures, stabilization of sediment producing areas by tree planting, channel improvement, streambank and roadside erosion control in addition to the land treatment measures. By January 1959, 22 of the planned floodwater retarding structures are scheduled to be completed or under construction.

#### Santa Ynez River Watershed, California

Total Estimated Federal cost .....	\$3,791,276
Total obligations through June 30, 1958 .....	1,953,363

The Santa Ynez River Flood Prevention Project, sponsored by the Lompac Soil Conservation District, in South-coastal California, covers 900 square miles of which 88.7 square miles are contained in subwatersheds on which work plans have been developed. Essentially all of these subwatershed lands lie in the westerly portion of the Santa Ynez basin and are privately owned. Flood flows from deeply entrenched canyons pour out onto highly fertile intensively cultivated lands used for vegetable and flower seed production. With each flood producing storm, sheet and gully erosion take place on lands outside the flood plains. Structural measures are designed to prevent degradation of entrenched gullies and to confine flood water to improved channels across the flood plains. Land treatment measures are applied to prevent sheet erosion and to improve soil fertility. Fire prevention measures are planned to maintain ground cover in the headwater portion of the watershed.



Planned land treatment measures estimated to cost local farmers \$175,000 are well advanced on the 14,200 acres of cropland and 42,500 acres of range land. Of the 267 farmers in the subwatersheds, 185 are district cooperators with 185 basic farm plans prepared. More than 93% of the land treatment measures have been applied, most significant of which are 37 miles of diversion terraces, 395 drop spillways, 7,454 acres of cover cropping, 41,687 acres of rotation grazing and 148 farm ponds constructed.

The Forest Service has constructed fire trails and other works to make large tracts of previously inaccessible areas available for fire prevention on the 221,000 acres of national forest lands located in the headwaters of the Santa Ynez River basin. Five miles of mechanized trail work, 11.3 miles of foot trail and 13½ miles of fire lane were completed during the 1958 fiscal year. Fire pre-planning work was continued.

Above twice normal precipitation in the headwaters included some fairly intensive storms and produced heavy runoff that filled Cachuma Reservoir in April for the first time since it was constructed in 1953.

Repair and maintenance of roads and trails was heavier than normal because of the rainfall and runoff during the year.

The sponsors, townspeople, and farmers are well organized and enthusiastic. Accomplishments of the Lompac Soil Conservation District Board of Directors have been outstanding. They have negotiated 32 contracts for flood prevention works of improvement for which they were reimbursed by the Federal Government. Land treatment work has been given highest priority for ACP assistance and will be installed well ahead of schedule.

Easements and rights-of-way valued at \$97,365 have been recorded for 46 landowners. These cover all of the flood prevention works installed on private lands to date which include 107 stabilization and sediment control structures, 3 silt and debris basins, 3.12 miles of outlet construction, 5.8 miles of channel stabilization, 9.72 miles of diversion waterways, 3.03 miles of floodways, revegetation and stabilization of 126.6 acres of critical areas as well as moving 54,719 cubic yards of earth for levees and dikes. The construction of flood prevention measures has changed the economy of the area by permitting the growing of winter crops of commercial flower seed, vegetables and orchards.

It is anticipated that designs, specifications, and land easements will be available for construction of one floodwater retarding structure, three sediment and debris basins, and approximately 1.0 miles of conduit with appurtenances for storm water diversion in the Cemetery Canyon subwatershed in the fiscal year 1959, with additional works of improvement following in successive years on the remaining subwatersheds.

#### Trinity River Watershed, Texas

Total estimated Federal cost .....	\$80,274,576
Total obligations through June 30, 1958 .....	17,296,881

This watershed comprises the upper 8,272,260 acres of the Trinity River Watershed. Practically all the land in the watershed is privately owned.



The watershed has been divided for work plan development into 54 subwatersheds. Flood prevention work plans have been developed on 31 of these subwatersheds, covering 5,953,215 acres. However, due to changes in policies and criteria and experience gained in the flood prevention program, it has been found that 17 of the 31 planned subwatersheds will require varying amounts of replanning. These 17 subwatersheds include 3,059,190 acres.

Good progress is being made in the application of planned land treatment work. Of the 41,841 farmers and ranchers in the watershed, 25,583 farmers and ranchers are district cooperators, of which 16,815 have basic farm conservation plans. These district cooperators represent 61.1 percent of the total farmers and ranchers in the watershed, and they are cooperating with 21 soil conservation districts within the watershed. Conservation treatment has been completed on 1,841 farms and ranches, containing 367,254 acres. On June 30, 1958 the following amounts of land treatment practices had been applied:

Cover cropping	529,581 Acres
Range seeding	27,529 Acres
Pasture planting	621,549 Acres
Terracing	20,733 Miles
Diversion construction	1,415 Miles
Pond construction	21,552 Each
Waterway development	31,299 Acres

One hundred eighty-five floodwater retarding structures were completed or under construction on June 30, 1958 together with 1.6 miles of floodways, 28.8 miles of floodwater diversions and 79 grade stabilization structures. All of the planned structural measures have been completed in 6 subwatersheds. Sixty-nine floodwater retarding structures, 5.5 miles of floodwater diversions and 6.7 miles of channel improvement are planned for construction during fiscal year 1959 in eight subwatersheds. These subwatersheds are: East Fork, Pin Oak Creek, Elm Fork, Sister Grove Creek, Clear Fork, Ten Mile Creek, Chambers Creek, Denton Creek and Upper East Fork Laterals.

During the spring of 1957, the structural works of improvement within the Trinity River Watershed were subjected to storms of unprecedented intensity and amount. During the period April 19 to June 3, as high as 42 inches of rainfall was recorded, with 30 to 35 inches being average. A comparatively small amount of damage was done to the structures, and they all functioned as planned. It is conservatively estimated that the 138 floodwater retarding structures that were completed at the time the storm began prevented over one million dollars in damages.

Washita River Watershed, Oklahoma

Total estimated Federal cost ..... \$47,642,429  
Total obligations through June 30, 1958 .... 15,792,327

The Washita River Watershed covers 7,871 square miles and is divided into 64 subwatersheds for the purposes of work plan development, local participation and operation. The primary problems are erosion on the uplands and the frequent flooding of 265,000 acres of bottomland along the tributaries and 112,000 acres on the main stem of the Washita River. The work of the Department consists of the reduction of soil erosion, and floodwater and sediment damages through a coordinated program of land treatment and structural measures. In addition, storage for irrigation and municipal water uses are included where local people provide funds for the added cost.

The local soil conservation district board and watershed associations are sponsors of each subwatershed. The Washita Council of Soil Conservation Districts provide over-all leadership guidance. This Council consists of members of the district boards and directors of watershed associations with officers elected annually.

Good progress is being made on the land treatment phase of the program. Accomplishments on some subwatersheds are outstanding. District supervisors have given top priority to completing the soil conservation practices in these watersheds. Proper use of range and pasture land has been practiced. Depleted areas have been revegetated; cultivated land has been terraced or reseeded to grass; contour farming and conservation crop rotation has been established. Gullies have been treated. The effects of adequately treating those watersheds has been the reduction of soil losses, increasing water intake into the soil and the resulting decrease in sediment deposits on bottomland downstream. Sixty percent of the Washita drainage area is under agreement with the soil conservation districts. More than 2/3 of the planned practices have been applied on the land. Major emphasis is now being placed on pasture planning, proper use and range seeding.

Two hundred and sixteen floodwater retarding structures and 115 sediment retention structures have been completed to date. All planned works of improvement and most of the land treatment measures have been completed on 14 subwatersheds. Construction of floodwater retarding structures is in progress on 11 other subwatersheds. Top priority is also given to completing the land treatment program on these watersheds. Work plans have been completed on 11 additional watersheds. The local people are obtaining easements for all sites on these watersheds so that construction may begin. Three other watersheds are now being planned which will bring the total planned to 38 subwatersheds and 65% of the Washita drainage basin.



Most outstanding are the accomplishments of the local soil conservation district supervisors and other leadership in the watersheds. Having completed the construction on 14 subwatersheds, the local sponsors have obtained easements on all sites in 11 watersheds where 229 structures are planned. Two-thirds of the sites in 11 other watersheds where 214 sites are planned have also been cleared. Voluntary easements by landowners for the benefit of others are often donated, although the farmer may have a loss of crop and pasture income. There are many examples of the local sponsors raising money to secure easements and to provide for operation and maintenance.

State and other Federal agencies have cooperated in developing work plans and carrying out the program. The Bureau of Indian Affairs has assisted in the preparation of work plans, in the securing of easements and carrying out land treatment on farms under their jurisdiction. The State of Oklahoma through a revolving fund has made available approximately \$120,000 during the past year which has been used by the soil conservation districts in condemning and obtaining easements where voluntary easements could not be secured. The staff under the direction of the Executive Secretary of the State Soil Conservation Board has also been increased and a legal assistant and information director has been employed. County Commissioners have re-routed many miles of roads, raised road fills and bridges, surfaced roadways across structures and relocated fences. Other section line roads have been closed. On one subwatershed, Barnitz Creek, the county costs have approached \$50,000. The Commissioner reported to the annual meeting of the soil conservation district that the structures on Barnitz Creek saved \$75,000 damage that would have occurred to bridges during the 1957 spring floods.

Although some storms have occurred on watersheds, no flooding has been reported in 1958 where structures have been completed. Reports were received of rainfall up to 8 inches occurring in less than a week on Barnitz Creek. The protection provided by the structures exceeded expectations as no flooding occurred. Untreated watersheds in the same general area received flood damage. The estimated damages from the storm of May 17-18, 1957, on 14 subwatersheds of the Washita District from Chickasha to Sulphur, Oklahoma without the planned program was \$1,502,684. The program was completed on three watersheds in the area and the reduction of damage was 70%. Flood prevention plans have been developed on most of the other watersheds within the storm path. Based on the function of the completed watersheds, had the planned program been installed on all 14 subwatersheds, the damage in the tributary areas would have been reduced from the more than 1-1/2 million dollars to \$438,000, a reduction of 71%. 22,065 acre feet of runoff was detained in the completed floodwater retarding structures. Had the other needed structures been completed, 112,572 acre feet of runoff would have been temporarily detained. While the damages from this storm on the main stem of the Washita River were not appraised, it seems reasonable that an installed upstream flood prevention program would have reduced main stem damages significantly.



The largest multiple-purpose project providing the greatest benefits in this watershed is the Spring Creek structure. The Soil Conservation Service participated with the city of Chickasha during the past year in constructing a multiple-purpose reservoir. It provides 56,000 acre feet of storage of which 20,000 acre feet is flood control and 36,000 acre feet is for municipal water supply. More than 72 square miles of area on Spring Creek drains through the structure. Benefits from the reduction of floodwater and sediment damages will accrue to the farmers who own the 1,050 acres of bottomland below this structure. Other benefits will accrue along the main stem as a part of the over-all plan on the Washita River. The city of Duncan, the local soil conservation district, and the Federal government have participated through cost-sharing in another multipurpose structure on Wildhorse Creek. It is a key site in carrying out the watershed plan. The drainage area is 32.2 square miles. Storage of 16,000 acre feet for flood prevention and 14,000 acre feet for municipal water is provided. Irrigation storage is provided in two other structures now completed and negotiations with local groups are in progress on other multiple-purpose structures.

The local sponsors have obtained easements on all sites on 14 other subwatersheds which will assure a full year's construction in the 1959 fiscal year. They are very optimistic about clearing easements and rights-of-way for Quartermaster, Cherokee Sandy, Beaver and Turkey Creeks, and the second segment of Wildhorse Creek Watersheds by January 1, 1959. The Washita Council in their meeting on June 22 1958 stressed completing the land treatment phase of the program and hoped to make fiscal year 1959 their highest productive year in the establishment of conservation practices. The local people are ready and the Soil Conservation Service has the design and construction personnel on the job. Approximately 80 floodwater retarding structures are scheduled for construction in the 1959 fiscal year.

#### Yazoo River Watershed, Mississippi

Total estimated Federal cost .....	\$39,339,364
Total obligations through June 30, 1958 .....	9,866,845

This project covers 3,222,400 acres, of which 227,975 acres are publicly-owned land. Approximately 39 percent of the watershed is in forest, 25 percent in cropland, 14 percent in pasture, 13 percent idle, and 9 percent in miscellaneous and reservoirs.

Operations began in the Yazoo River Watershed in 1947. The watershed is now divided into 26 subwatersheds and plans for 13 of these have been completed. A legally organized water management district will sponsor the work in each subwatershed along with the soil conservation district. There are 20 legal organizations in the watershed which have requested assistance.

There are 15,297 farm operating units in the watershed. Basic plans have been prepared on 8,153 farm units covering 1,941,374 acres. From the beginning of this project, high priority has been given to the treatment of critically eroding lands. To date 169,500 acres have been planted to trees, grasses and legumes. In addition, 4,296 desilting dams and 473 miles of diversion ditches have been constructed, and 1,661 miles of highway erosion control work completed. Emphasis is now shifting to speeding up the construction of floodwater retarding structures. To date 16 of these structures have been completed, 11 are under contract, and 25 are scheduled for the fiscal year 1959.

#### Emergency Measures

Section 216 of the Flood Control Act of 1950 authorizes the emergency treatment of watersheds impaired by fire or other natural elements to prevent serious sediment and flood damage to life and property. Seven such watersheds involving 43,191 acres of newly burned forest and range-land were treated during the fiscal year 1958 at a total cost of approximately \$127,585. Local beneficiaries contributed about \$50,926, and the Federal Government financed the remaining \$76,659 from flood prevention funds for "emergency measures".

All of the eleven areas treated were located in southern California. Approximately 237,000 pounds of rapid germinating rye grass, mustard, brome, and other grasses were sown by airplane or helicopter to provide an immediate protective cover over most of the burned areas. The seeding generally was successful. In addition, 13.75 miles of fence was constructed and 9.9 miles of fire control lanes and trails were stabilized to prevent gullying by runoff waters.

#### Progress in Basic Data Collection

Work was begun by the Forest Service Southern Forest Experiment Station late in the 1956 fiscal year on the collection of basic runoff data and erosion conditions as related to slope and vegetative cover in the Little Tallahatchie and Yazoo Watersheds in Mississippi. Information of this nature was badly needed by technicians for the design of adequate and economical structural measures and effective conservation treatment of watershed lands in that area. A group of three small subwatershed units selected for instrumentation consisted of abandoned, actively eroding, formerly cultivated lands, which were reverting to forest. Stream gaging and standard and recording precipitation gages were installed and provisions were made for sediment sampling. Runoff and sediment computations have been completed for the first nine-month period of operation of this group of abandoned old-fields. Soil losses from one 2.6 inch storm in April 1957 produced more than 70% of the total sediment production for the nine-month period. Similar storms can be expected annually in the test area. Another group of three subwatershed units in depleted upland hardwoods were also selected for instrumentation and the instruments were installed in the 1957 fiscal year. Actual measurements were begun in the 1958 fiscal year. Installation of necessary instruments in a third battery of three small



watersheds having a good stand of loblolly pine planted 20 years ago on eroding abandoned cropland was completed and measurements started as of January 1, 1958. All nine of the small natural drainage units being studied have comparable soils. This work will be continued until sufficient data has been accumulated to establish patterns from which technicians may make proper determinations as to adequate watershed improvement measures. Some data already available to the Experiment Station will also be analyzed in connection with this study.

In addition to the above installations the Department is conducting similar studies in other flood prevention watersheds. Reimbursements totalling \$21,381 were also paid to the U. S. Geological Survey for stream gaging and collecting rainfall and runoff data in the flood prevention watersheds for use by field technicians during the 1958 fiscal year.





(d) Water Conservation and Utilization Projects

Appropriation Act, 1959, and base for 1960 .....	\$335,000
Budget Estimate, 1960 .....	<u>75,000</u>
Decrease (due to reduction in program level for 1960 at the Eden Valley project) .....	<u><u>-260,000</u></u>

PROJECT STATEMENT

Project	1958	1959 (estimated)	Decrease	1960 (estimated)
Development of land for irrigation .....	\$348,620	a/ \$335,000	-\$260,000(1)	\$75,000
Total pay act costs (P. L. 85-462) .....	[4,830]	[10,000]	[-7,900]	[2,100]
1957 appropriation available in 1958 .....	-15,805	- -	- -	- -
1958 appropriation available in 1959 .....	17,185	- -	- -	- -
Total appropriation or estimate .....	350,000	335,000	-260,000	75,000

a/ In addition, \$17,185 available from prior-year balances.

DECREASE

(1) A decrease of \$260,000 to reduce the level of irrigation development on the Eden Valley project to the level scheduled for 1960 in the long-range plan for completion of the project.

The Eden Valley project in Wyoming is the only remaining active project under the authority of the Case-Wheeler Act. The schedule provides for completion of all irrigation development work and final sale of the developed farm units by December 31, 1961. Development work includes farm unit surveys, land levelling, installation of laterals and other water distribution structures and drains and seeding of cover crops on developed areas to prevent wind erosion damage. Land levelling, brush clearing and other irrigation development work carried out by force account are scheduled at the most efficient rate to meet the completion date. The \$75,000 requested will be adequate for planned 1960 project operations as scheduled in the long-range plan for completion of the project.





# STATUS OF PROGRAM

## Examples of Recent Progress:

### Status of Project Development

Nineteen Water Conservation and Utilization Projects were originally authorized for development and settlement under the Department of Interior Appropriation Act of 1940 and the "Case-Wheeler" Act of August 11, 1939, as amended and supplemented. Six of these projects are no longer planned for development due to inflationary land prices and other changes since they were authorized. Twelve projects have been completed. The only remaining project of the original authorization, located at Eden Valley, Wyoming, is scheduled for completion in the fiscal year 1962.

### Eden Valley Project, Wyoming

Land development for irrigation on the Government-owned land on this project was begun in the spring of 1954. At that time there was before the Congress a proposal to authorize the exchange of certain Federal land on the project for public domain land held by the Department of the Interior and for lands belonging to the State of Wyoming that were found to be better suited for irrigation farming. The Congress enacted Public Law 377, approved May 28, 1954, authorizing these land exchanges. The initial transfer of lands under this law from the Department of Interior to the Department of Agriculture was made in May 1955. The transfer of the remaining lands was accomplished during the 1956 fiscal year. The land exchanges between the Department of Agriculture and the State of Wyoming were completed during the 1957 fiscal year. A final transfer will convey Federal lands not used in the development of the project from the Department of Agriculture to the Department of Interior when the project is completed.

Project land development by the Department on this project is continuing in accordance with the revised development schedule adopted in the 1956 fiscal year which provides for a period of development, settlement, and sale of farming units extending into the fiscal year 1962.

The first sale of newly developed irrigation farms was made in December 1956. The second sale was made prior to the 1958 cropping season. Twelve more new farms are planned for sale prior to the 1959 crop season.

### Obligations by Projects

The following table shows the actual obligations incurred under this program in 1958 and estimated obligations for the fiscal years 1959 and 1960.

Project	: Actual : F. Y. 1958	: Estimated : F. Y. 1959	: Estimated : F.Y. 1960
Eden Valley, Wyoming (Direct	:	:	:
Project costs).....	\$321,359	\$323,585	\$ 66,000
Recovery of prior Year Obligation	- 100	-----	-----
General Administration.....	27,361	28,600	9,000
Total Estimates.....	\$348,620	\$352,185	\$ 75,000

Development Accomplishments and Work Load

The following table shows some of the more important items of development work planned, the amount completed to date, and the amount remaining to be done:

Item	:	Unit	:	Total : Development:	:	Accomplished to	:	Remaining to
	:		:	Planned *	:	6/30-58	:	7/1-58
Topographic surveys .....	:	Acre	:	162,541	:	161,478	:	1,063
Land classification .....	:	Acre	:	194,089	:	194,089	:	--
Unit subdivisions .....	:	No.	:	546	:	546	:	--
Clearing .....	:	Acre	:	30,651	:	29,779	:	872
Leveling .....	:	Acre	:	69,034	:	66,914	:	2,120
Farm laterals .....	:	Mile	:	939	:	899	:	40
Farm drains .....	:	Mile	:	596	:	485	:	111
Farm Irrigation Structures .	:	No.	:	9,094	:	8,623	:	471

\* Project reduced in scope and planned development revised as of 6/30-58.

Status of Land Development and Farm Sales

as of June 30, 1958

Project	:	Date	:	Irrigable	:	Percent	:	Federally-owned
	:	Authorized	:	Acreage	:	Development	:	tract c/
	:		:		:	Completed	:	Total: Number
	:		:		:		:	number: Sold
Angostura .....	:	March 6, 1941	:	12,154	:	100	:	105 : 105
Bitterroot ;.....	:	March 22, 1944	:	18,630	:	8 b/	:	- : -
Buffalo Rapids I...	:	May 15, 1940	:	14,507	:	100	:	95 : 95
Buffalo Rapids II..	:	May 15, 1940	:	10,400	:	100	:	110 : 110
Buford-Trenton .....	:	Sept. 23, 1939	:	14,729	:	100	:	134 : 134
Dodson a/.....	:	March 17, 1944	:	1,200	:	100	:	- : -
Eden Valley .....	:	Sept. 18, 1940	:	17,000	:	80	:	59 : 14
Intake a/.....	:	Jan. 20, 1944	:	825	:	99 b/	:	- : -
Mancos .....	:	Oct. 24, 1940	:	10,000	:	54 b/	:	2 : 2
Mirage Flats .....	:	March 30, 1940	:	12,000	:	100	:	111 : 111
Missoula a/.....	:	May 10, 1944	:	900	:	100	:	- : -
Newton a/.....	:	Oct. 17, 1940	:	2,225	:	100	:	- : -
Post Falls .....	:	Jan. 29, 1944	:	3,260	:	90 b/	:	17 : 17
Rapid Valley .....	:	Nov. 8, 1939	:	12,000	:	- b/	:	- : -
Scofield a/.....	:	May 24, 1943	:	12,500	:	30 b/	:	- : -

a/ Projects include no Federally-owned land.

b/ Projects closed, no further development work contemplated.

c/ In addition there are privately-owned lands within a number of projects on which development work is done.



Project Authorizations and Obligations through 6/30-58

Project	: Present	Obligations through 6/30-58				
	: Project	: "Wheeler	: "Great	: Contri-		
	: Authori-	: Case"	: Plains"	: buted	: Total	
	: zation	: Funds	: Funds	: Funds		
Angostura .....	\$1,484,000	\$1,399,211	---	---	\$1,399,211	
Balmorhea .....	569,000	---	---	---	---	
Bismarck .....	None	---	---	---	---	
Bitterroot.....	752,000	167,811	---	---	167,811	
Buffalo Rapids I.....	743,770	99,296	\$210,000	\$424,175	733,471	
Buffalo Rapids II.....	810,122	319,721	345,000	139,608	804,329	
Buford-Trenton .....	1,094,000	62,798	762,958	264,838	1,090,594	
Dodson .....	84,000	51,484	---	---	51,484	
Eden Valley .....	2,340,000	1,540,587	154,595	5,061	1,700,243	
Intake .....	41,000	20,817	---	---	20,817	
Mancos .....	473,000	366,879	---	---	366,879	
Mann Creek .....	None	---	---	---	---	
Mirage Flats .....	687,300	479,152	170,000	36,837	685,989	
Missoula.....	133,000	65,297	---	---	65,297	
Newton .....	75,500	74,230	---	---	74,230	
Post Falls.....	196,000	a/ 196,367	---	---	196,367	
Rapid Valley.....	170,000	7,117	15,042	---	22,159	
Saco Divide.....	480,000	---	405	---	405	
Scofield.....	350,000	119,531	---	12,200	131,731	
Total Direct	:	:	:	:	:	
Project Costs.....	\$10,482,692	\$4,970,298	1,658,000	\$882,719	\$7,511,017	
Project Investigations	:	:	:	:	:	
and Surveys.....	---	233,473	---	---	233,473	
General Administration	---	:	:	:	:	
Farm Security	:	:	:	:	:	
Administration ...	---	349,091	---	---	349,091	
Office of Production	---	4,137	---	---	4,137	
Office of the	:	:	:	:	:	
Solicitor.....	---	59,957	---	---	59,957	
Soil Conservation	:	:	:	:	:	
Service.....	---	904,425	---	---	904,425	
Total Obligations	:	:	:	:	:	
through 6/30-58.....	---	6,521,381	1,658,000	882,719	9,062,100	

a/ Net obligations after deduction for residual value of equipment is \$186,545.





(e) Great Plains Conservation Program

Appropriation Act, 1959, and base for 1960 .....	\$10,000,000
Budget Estimate, 1960 .....	12,500,000
Increase (for cost-sharing assistance to farmers and ranchers) .	<u>+2,500,000</u>

Note: Although an increase of \$2,500,000 is proposed in the appropriation for 1960, it is estimated that total obligations will be \$1,863,852 below those for the fiscal year 1959, due to the availability in 1959 of \$4,363,852 in prior-year unobligated balances.

PROJECT STATEMENT

Project	1958	1959 (estimated)	Increase	1960 (estimated)
1. Great Plains conserva-				
tion program:				
(a) Cost-sharing assist-				
ance .....	\$4,293,903:	\$7,900,000:	+\$2,500,000(1):	\$10,400,000
(b) Technical services				
and operating expenses	1,342,245:	2,100,000:	- -	2,100,000
Total pay act costs (P.L.				
85-462) .....	[57,117]:	[143,000]:	- -	[143,000]
Subtotal .....	<u>5,636,148:</u>	<u>10,000,000:</u>	<u>+2,500,000</u>	<u>12,500,000</u>
1958 appropriation avail-				
able in 1959 .....	4,363,852:	- -		
Total appropriation .....	<u>10,000,000:</u>	<u>10,000,000:</u>		

a/ In addition, \$4,363,852 is available from prior year balances for cost-sharing assistance.

INCREASE

(1) An increase of \$2,500,000 for cost-sharing assistance to farmers and ranchers in the Great Plains States to install soil and water conservation practices.

Need for Increase: The Great Plains conservation program, authorized by Public Law 1021 of the 84th Congress, was initiated in August 1957 in the 221 counties of the 10 Great Plains States then designated by the Secretary as eligible to receive assistance under the program. As of June 30, 1958, an additional 97 counties had been designated as eligible to participate in the program which brought the total to 318. More of the remaining 104 eligible counties may be proposed for designation by the Secretary from time to time. The 318 designated counties are located in the 10 Great Plains States as follows:

Colorado	28	North Dakota	30
Kansas	34	Oklahoma	14
Montana	31	South Dakota	24
Nebraska	58	Texas	76
New Mexico	17	Wyoming	6

In spite of very favorable precipitation and wind conditions in the Great Plains during the 1957-58 blow season, more than 3,400,000 acres of crop-land were damaged and a total in excess of 3,700,000 acres of land were impaired by soil removal or deposition. These damages were

significantly less than those reported for any season since 1951-52 and only about 1/3 of the damages reported for the 1956-57 season. However, flood damage from intensive rains was widespread. Historically, severe droughts, high winds, and high intensity rain storms periodically plague large sections of the Great Plains area and cause severe damage and heavy economic losses.

In view of continuing land damage, the probability of the need for designating additional counties as eligible for program participation, and the demonstrated interest of farmers and ranchers in the Great Plains in taking action to solve their intensified land use and land treatment problems an appropriation of \$12.5 million is estimated to be necessary in the fiscal year 1960. The Budget Estimate would provide for the contracts expected to be negotiated with producers in the fiscal year 1960. These long term (3-10 years) cost-sharing contracts assure farmers and ranchers the assistance they must have to make needed land use adjustments, convert unsuited cropland to grassland, and to install needed conservation practices.

The amount of funds unobligated at the close of the 1958 fiscal year was due in large measure to effective operation of the program for only a part of the year. After funds first became available in August 1957 it was necessary to develop State and county programs including approved lists of eligible practices, average local costs of installing practices and cost-share rates. Some special employee training was necessary to acquaint technicians with the program. Landowners and operators had to be informed of the provisions of the legislation and the cost-sharing assistance available. In many counties these preliminary steps were not completed until the spring of 1958.

Program regulations define soil and water conservation practices particularly suited to the Great Plains area that are eligible for cost-sharing with Federal funds when applied in combinations set forth in plans of operations prepared for individual farms and ranches which become a part of the cost-sharing contract. These plans are prepared with the assistance of Service technicians. Farmers and ranchers also receive technical help with the installation of planned land treatment measures.

Provision is made for issuance to program participants, where desired, of cost-sharing authorizations. These enable the producers to secure from local merchants and contractors the conservation materials, supplies and services they need in applying eligible practices and to have their cost-shares paid to the vendors.

Federal cost-sharing payments for the entire contract period are committed upon the effective date of the contract although actual payment of funds to the participants are not made until an identifiable unit of the practice is satisfactorily installed. The maximum cost-share rate does not exceed 80% of the average estimated cost of installing each eligible practice. Approved lists of eligible conservation practices, average costs of installing the practices, and cost-share rates (80% or less) are maintained for each designated county and together with the plan of operations provide the base for cost-sharing contracts executed with producers.



## STATUS OF PROGRAM

### Current Activities:

The Great Plains Conservation Program authorized under Public Law 1021, 84th Congress, is carried out in those counties in the 10 Great Plains States that are designated by the Secretary as susceptible to serious wind erosion by reason of their soil types, terrain, climatic and other factors. Assistance is provided to producers in developing and carrying out plans of farming and ranching operations that will help to minimize climatic hazards, conserve water and protect their lands from erosion and deterioration by natural causes. This is a new and voluntary program which supplements existing Departmental programs and activities and does not replace any of them.

The Service enters into a long-term cost-sharing contract with a producer after agreement has been reached with him on a plan of operations for proper conservation treatment and use of all of the land in the farm or ranch operating unit. Contracts may extend from 3 to 10 years. The contracts include a time schedule of proposed changes in cropping systems and land use and the conservation measures which are to be carried out on the farm or ranch during the contract period. The farmer or rancher who signs a Great Plains Program contract is responsible for accomplishing his plan of operations and should use all available sources of assistance under other local, State, or Departmental programs that contribute to achieving conservation land treatment and moisture conservation. The services of soil conservationists, engineers, or other agricultural specialists and aides are provided to assist farmers and ranchers to develop acceptable plans of operations and to install the land use and conservation treatment measures according to schedules agreed to in plans covered by the contracts.

A list of practices eligible for cost-shares has been published. It includes establishment of permanent vegetative cover, field or contour strip-cropping, contour cultivation, improvement of range cover, trees or shrubs for windbreaks or shelterbelts, establishment of waterways, construction of terrace systems, chiseling or pitting of range land, construction of dams, development of irrigation works, construction of wells for livestock, installing pipe lines, constructing fences, and controlling brush. The maximum cost-share rate offered in any contract cannot exceed 80 percent of the average estimated cost of installing each eligible practice. There is no limitation on the amount of cost-shares an individual may earn except a limitation by program regulations of \$2,500 for cost-shares for developing dams or ponds for irrigation. It is the policy to limit cost-sharing amounts for all irrigation practices to approximately \$2,500 for any one contract or to about one-fourth of the contract obligation, whichever is the larger.

A farmer or rancher may receive a cost-share payment when he has carried out a practice or an identifiable unit of his plan. The law provides that total cost-shares paid under the program shall not exceed \$25 million for any one program year, and the total cost of the program, excluding administrative expense, may not exceed \$150,000,000.

### Program Assignments

Administrative responsibility for carrying out the Great Plains Conservation Program has been assigned to the Soil Conservation Service. A continuing inter-agency Departmental committee, consisting of representatives of the Soil Conservation Service (as Chairman), Agricultural Conservation Program Service, Agricultural Marketing Service, Agricultural Research Service, Commodity Stabilization Service, Farmers Home Administration, Federal Crop Insurance Corporation, Federal Extension Service, Forest Service, and Office of Information, has been designated by the Secretary to recommend program policies, procedures, and regulations and to assure coordination of all Departmental resources in the Program. State and County Program Committees have been established also to help coordinate the program in the respective Great Plains States and counties and adapt it to specific needs within the program regulations.

#### Examples of Recent Progress:

Following is the estimated distribution of the Great Plains Conservation Program funds by agency between cost-sharing payments and operating expense:

Item and Agency	1958 Obligations	1959 Appropriation	1960 Estimate
Cost-Sharing Payments by Soil Conservation Service	\$4,293,903	\$7,900,000	\$10,400,000
Operating Expenses:			
Agricultural Conservation Program Service .....	6,831	21,424	21,424
Commodity Stabilization Service .....	72,526	142,500	153,500
Forest Service .....	29,756	32,903	32,000
Office of Information .....	16,674	20,600	20,600
Soil Conservation Service ..	<u>1,216,458</u>	<u>1,882,573</u>	<u>1,872,476</u>
Total .....	1,342,245	2,100,000	2,100,000
GRAND TOTAL .....	5,636,148	a/10,000,000	12,500,000

a/ In addition \$4,363,852 is available from prior year balances for cost-sharing assistance.

#### Eligible Counties Designated by Secretary

The Secretary has designated the following <sup>3</sup>218 counties in the 10 Great Plains States as of June 30, 1958, in which farmers and rancher are eligible to participate in the program offered (additional counties may be designated from time to time).



COLORADO (28) -- Adams, Arapahoe, Baca, Bent, Boulder, Cheyenne, Crowley, Douglas, Elbert, El Paso, Fremont, Huerfano, Jefferson, Kiowa, Kit Carson, Larimer, Las Animas, Lincoln, Logan, Morgan, Otero, Phillips, Prowers, Pueblo, Sedgwick, Washington, Weld, Yuma.

KANSAS (34) -- Cheyenne, Clark, Comanche, Decatur, Edwards, Finney, Ford, Gove, Graham, Grant, Gray, Greeley, Hamilton, Haskell, Hodgeman, Kearny, Lane, Logan, Meade, Morton, Ness, Norton, Rawlins, Rush, Scott, Seward, Sheridan, Sherman, Stanton, Stevens, Thomas, Trego, Wallace, Wichita.

MONTANA (31) -- Big Horn, Carbon, Carter, Choteau, Dawson, Fallon, Fergus, Garfield, Glacier, Golden Valley, Hill, Judith Basin, Liberty, McCone, Musselshell, Petroleum, Pondera, Powder River, Richland, Roosevelt, Rosebud, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Wibaux.

NEBRASKA (58) -- Adams, Antelope, Arthur, Banner, Blaine, Boone, Box Butte, Boyd, Brown, Buffalo, Chase, Cherry, Cheyenne, Clay, Custer, Dawes, Dawson, Deuel, Dundy, Franklin, Frontier, Furnas, Garden, Garfield, Gosper, Greeley, Hall, Hamilton, Harlan, Hayes, Hitchcock, Holt, Howard, Kearny, Keith, Keyapaha, Kimball, Lincoln, Logan, Loup, McPherson, Merrick, Morrill, Nance, Nuckolls, Perkins, Phelps, Red Willow, Rock, Scotts Bluff, Sheridan, Sherman, Sioux, Thayer, Thomas, Valley, Webster, Wheeler.

NEW MEXICO (17) -- Chaves, Colfax, Curry, DeBaca, Eddy, Guadalupe, Harding, Lea, Lincoln, Mora, Quay, Roosevelt, San Miguel, Santa Fe, Socorro, Torrance, Union.

NORTH DAKOTA (30) -- Adams, Billings, Bottineau, Bowman, Burke, Burleigh, Divide, Dunn, Emmons, Golden Valley, Grant, Hettinger, Kidder, Logan, McHenry, McIntosh, McKenzie, McLean, Mercer, Morton, Mountrail, Oliver, Renville, Sheridan, Sioux, Slope, Stark, Stutsman, Ward, Williams.

OKLAHOMA (14) -- Beaver, Beckham, Cimarron, Custer, Dewey, Ellis, Greer, Harmon, Harper, Major, Roger Mills, Texas, Woods, Woodward.

SOUTH DAKOTA (24) -- Aurora, Brule, Buffalo, Butte, Campbell, Charles Mix, Corson, Custer, Fall River, Gregory, Haakon, Hand, Hughes, Jerauld, Jones, Lyman, Meade, Mellette, Perkins, Stanley, Sully, Todd, Tripp, Walworth.

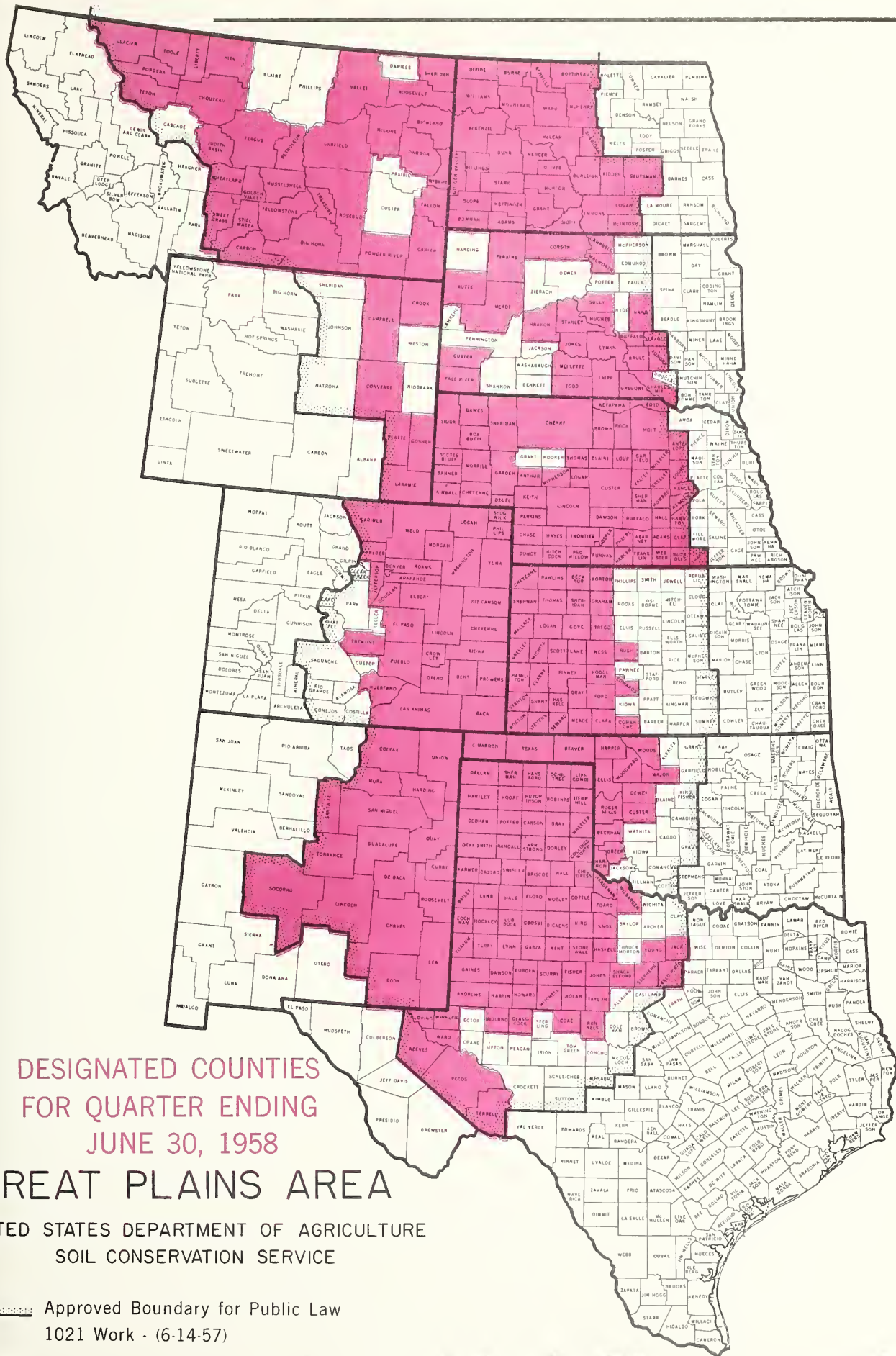
TEXAS (76) -- Andrews, Armstrong, Bailey, Borden, Brisco, Carson, Castro, Childress, Cochran, Coke, Collingsworth, Cottle, Crosby, Dallam, Dawson, Deaf Smith, Dickens, Donley, Fisher, Floyd, Foard, Gaines, Garza, Glasscock, Gray, Hale, Hall, Hansford, Hardeman, Hartley, Haskell, Hemphill, Hockley, Howard, Hutchinson, Jack, Jones, Kent, King, Knox, Lamb, Lipscomb, Loving, Lubbock, Lynn, Martin, Midland, Mitchell, Moore, Motley, Nolan, Ochiltree, Oldham, Palo Pinto, Parmer, Pecos, Potter, Randall, Reeves, Roberts, Runnels, Scurry, Shackelford, Sherman, Stephens, Stonewall, Swisher, Taylor, Terrell, Terry, Ward, Wheeler, Wilbarger, Winkler, Yoakum, Young.

WYOMING (6) -- Campbell, Converse, Crook, Goshen, Laramie, Platte.

A map of designated counties for the quarter ending June 30, 1958 follows:











Cost-Sharing Contracts Completed and in Process

As of June 30, 1958, a total of 2,328 applications involving 7,218,453 acres had been received from farmers and ranchers in the 288 designated counties. The development of conservation plans of operations as a basis for time schedules and cost-sharing contracts was under way on almost 800 farms and ranches, and 575 contracts had already been prepared for 1,828,776 acres.

Farmers and ranchers entering into contracts in the Great Plains Conservation Program generally were cooperators in their soil conservation districts before participating in this new program. They had usually already applied a number of conservation measures and many were participants in the Acreage Reserve or Conservation Reserve programs as well as the Agricultural Conservation Program and plan to continue to participate in these and other farm programs. This new Great Plains Conservation Program is enabling a substantial number of landowners and operators to make needed land use adjustments and install protective conservation measures more rapidly than was formerly possible.

In fact, the effects of the program are already beginning to show on farms and ranches scattered throughout the Great Plains. The status of applications received, plans of operation in process and cost-sharing contracts prepared by States is shown in the following table:

Applications and Contracts  
Great Plains Conservation Program  
Total to June 30, 1958

State	Applications		Contracts	
	Received		Prepared	
	(Total)			
	Number	Acres	Number	Acres
Colorado .....	142	536,144	43	54,263
Kansas .....	77	232,464	22	87,973
Montana .....	55	317,446	2	4,000
Nebraska .....	424	416,538	98	131,812
New Mexico .....	201	1,882,118	68	823,156
North Dakota .....	308	545,968	52	88,981
Oklahoma .....	128	357,093	48	182,777
South Dakota .....	48	312,222	13	35,965
Texas .....	903	2,312,302	221	359,669
Wyoming .....	42	306,158	8	60,180
Total .....	2,328	7,218,453	575	1,828,776

Cost Sharing

Through June 30, 1958 there were 575 Great Plains Conservation Program contracts in force in the 288 designated counties. They provide for cost-share payments to farmers and ranchers amounting to \$4,293,903. The average total cost-share amount per acre is \$2.35. The average size of the farm or ranch for which contracts were prepared during the 1958 fiscal year is 3,180 acres.

Significant contract information as of June 30, 1958, by States follows:

State	Great Plains Conservation Program Contracts to 6/30/58				
	Number	Acres	Total Cost-Shares		
	of	in	Amount	Average per Acre	
	Contracts	Contracts	Obligated	(Amount)	
Colorado .....	43	54,263	\$297,559	\$5.48	
Kansas .....	22	87,973	466,574	5.30	
Montana .....	2	4,000	5,450	1.36	
Nebraska .....	98	131,812	583,738	4.43	
New Mexico .....	68	823,156	421,707	0.51	
North Dakota ...	52	88,981	169,856	1.91	
Oklahoma .....	48	182,777	470,601	2.57	
South Dakota ...	13	35,965	100,421	2.79	
Texas .....	221	359,669	1,617,915	4.50	
Wyoming .....	8	60,180	160,082	2.66	
Total .....	575	1,828,776	4,293,903	2.35	

Practice Performance in Fiscal Year 1958

Although the first "Great Plains" cost-sharing contracts were signed only in December of 1957, farmers and ranchers in 8 States performed an appreciable amount of planned work for which cost-share payments had been made by June 30, 1958. The following table shows these payments by States:

State	: Establishment of :		: All Other :		: Total	
	: Permanent :		: Reseeding Range :		: Conserva- :	
	: Vegetative Cover :		: (Practice GP-5) :		: tion :	
	: (Practice GP-1) :		: (including fencing) :		: Measures :	
	: Cost-Shares :		: Cost-Shares :		: Cost-Shares :	
	: Acres :	: Paid* :	: Acres :	: Paid* :	: Paid :	: Paid :
Colorado .....	16:	\$292	--:	--	\$4,986	\$5,278
Kansas .....	271:	3,089	12,630:	\$101,040	260	104,389
Montana .....	--:	--	--:	--	--	--
Nebraska .....	337:	4,722	--:	--	8,169	12,890
New Mexico ...	467:	2,798	144:	661	5,547	9,007
North Dakota .	829:	3,201	--:	--	8,866	12,067
Oklahoma .....	20:	1,777	--:	38,872	61,133	101,782
South Dakota ..	--:	--	--:	--	--	--
Texas .....	871:	7,605	7,745:	34,968	104,412	146,985
Wyoming .....	--:	--	--:	--	1,936	1,936
Total .....	2,811:	23,484	20,519:	175,541	195,309	394,334

\*In addition to payment for complete treatment of the acreage reported, the amount shown includes payment to producers for completion of identifiable units of the practice, such as seedbed preparation or fencing and payment to vendors for conservation materials or services furnished to producers.



### Cropland Converted to Grass

A key problem in the Great Plains is the 11 to 14 million acres of land in cultivation that is unsuited for the continued production of cultivated crops. Some of the soils are thin or on steep slopes. Others are made up of sandy or other loose material that moves easily in the wind. One of the primary aims of the Great Plains Conservation Program is to aid farmers and ranchers in determining the areas of their farm land unsuited for cultivation and assist them to convert these erodible areas to a permanent vegetative cover.

A survey of 45 representative Great Plains plans covered by contracts in nine States revealed that from 16 percent to 64 percent of the land being cropped before the contract period was unsuited for continuous crop production. The plans provided for converting substantially all of this cropland to permanent grass.

A recent review of Great Plains Conservation Program contracts in Nebraska revealed that about 33 percent of the land in crops, when the contracts were prepared, is unsuited for cultivated crops and will be planted to permanent grass. About 24 percent of the cropland in the first five contracts signed in Wyoming is being planted to grass. There was an average of about 85 acres per contract converted to grassland in 420 contracts analyzed in June of 1958. These provided for seeding grass on a total of 35,500 acres during the average contract life of about four years.

### Examples of Work Planned Under Great Plains Contracts

#### Dunn County, North Dakota

The native grass range had been slowly deteriorating for years on this 2,440 acre purebred beef cattle ranch. Dry weather and an expanding herd of beef cattle were taking their toll. When the rancher heard about the Great Plains Conservation Program, he promptly contacted the local Extension Agent and the Soil Conservation District. After considerable discussion it became apparent that he would have to convert a sizeable amount of his cash cropland to spring pasture or reduce his herd. After considering erosion hazards, erratic crop yields, national surpluses and other factors, he decided on continuing with livestock production.

Under his Great Plains contract he will receive estimated cost-shares of \$4,000. The contract provides for making the following major adjustments:

1. Seeding approximately 300 acres of fair to good cropland down to permanent tame pasture for spring and early summer use. The seeding has already been accomplished. Great Plains cost-share payments for this phase amounted to approximately \$2,600.
2. Developing three stockwater ponds and one stockwater well. While originally scheduled over a two-year period, the need for water and availability of contractors prompted him to request modification of the contract and establish them all this year. Great Plains cost-shares for the work amounted to approximately \$700.
3. Establishing a pasture division fence for better grazing distribution. This fence has been completed with approximately \$250 Great Plains cost-share assistance.
4. Establishing a stocking and grazing schedule to permit improvement of range condition and long term maintenance of good to excellent cover. The system is to be in full operation within two years.
5. Utilizing stripcropping and stubble-mulching to protect the remaining cropland acreage.
6. Expanding current tree plantings for protecting feedlot and head-quarter area. Approximately \$50 of Great Plains cost-shares will be earned.

A total of 25 contract items are involved in establishing the plan. ACP assistance is expected for carrying out stubble-mulch tillage and rotation seedings and has been utilized in past years in establishing practices now a part of the conservation treatment applied.

#### Stonewall County, Texas

At the time the plan for this 660 acre farm was developed there were 440 acres of native grazing land and 200 acres of cropland. Major erosion problems from wind and water existed on both cropland and rangeland. Brush had severely invaded more than half the rangeland and climax grasses had become severely depleted.

The major provisions of this plan call for proper use of native grass-land using deferred grazing, brush control, and reseedling to re-establish desirable native grasses. Forty-six acres of cropland is being planted to native grasses and a pond will be built and approximately 90 rods of crossfencing constructed to provide better management over grazing. The 174 acres of cropland will have a conservation cropping system that will provide supplementary feed and cash crops. Cost-sharing funds in the amount of \$2,508.60 have been obligated for brush control, range pitting, range reseedling, fencing, and pond construction.



The landowner has completed approximately 65% of the items to be cost-shared in this contract. Cost-share payments have been made in the amount of \$1,651 from Great Plains Conservation Program funds. He is using the Conservation Reserve Program on the cropland being planted to grass. He had previously established 12 miles of level closed-end terraces using ACP cost-sharing assistance.

Dawson County, Texas

The range land on a 14,190 acre ranch near Lamesa had become seriously depleted of climax grasses and heavily infested with brush at the time the operators made application for Great Plains Program assistance. There were also approximately 500 acres of old fields unsuited for cultivation that constituted a serious wind erosion problem. The cropland on the ranch is sandy soil and highly susceptible to wind erosion. The wind erosion damage on both cropland and rangeland had been serious,

The five-year operating plan prepared for this ranch provides for the control of brush and reseeding of 4,916 acres of native rangeland, the installation of additional watering facilities and the establishing of perennial grasses on 500 acres of old fields being retired to perennial grass. The plan also calls for the remaining 275 acres of cropland to be planted continuously to sorghum crops for forage production with proper management of sorghum residues. Cost-sharing in the amount of \$34,715 will be provided under this contract for reseeding rangeland, control of brush, seeding grass, installing pipelines for livestock water and constructing wells for livestock water.

This contract extends through 1962 and the operators have already completed 762 acres of brush control and range seeding and have established cover in which to seed grass on the old fields.

Sherman County, Nebraska

Although he was an early cooperator with the Sherman County Soil Conservation District, this combination grain and livestock farmer was still farming 149 acres of erodible cropland on his 720 acre farm when he signed his Great Plains Conservation Program contract in February, 1958. He has 82 acres in the Conservation Reserve Program and had already received cost-sharing assistance for legume seeding and terracing through the Agricultural Conservation Program. The farmer now plans to increase the amount of pasture by seeding the erodible 149 acres of cropland to permanent pasture, to install eight acres of sod waterways, eight more miles of terracing, 407 rods of fencing, one livestock well and one acre of tree planting



for a windbreak. Cost-shares estimated at \$5,150 will be provided as scheduled during the seven cropping seasons of the contract to assist in the orderly completion of these permanent conservation measures.

The contract also calls for following a conservation cropping system on the contour on the 131 remaining acres of cropland and for deferred grazing and proper use of all of the grassland on the farm but no "Great Plains" cost-shares will be received for this work.

#### Burleigh County, North Dakota

Poor yields and erosion problems on thin gravelly soils convinced this North Dakota farmer that he needed some adjustments in his cash crop-livestock unit. He had worked out the broad outlines of a conservation plan for his 1,700 acre place with the North Burleigh Soil Conservation District prior to announcement of the Great Plains Program. He was very anxious to move ahead with the plan but even after calculating ACP assistance and checking credit available, he felt he just could not finance the needed adjustments. The cost of land-use adjustments and treatment alone would run between four and five thousand dollars and should be made in a period of not over five years.

This farmer made application for assistance under the Great Plains Conservation Program and completed development of a long range conservation plan. The plan will enable him to run approximately 140 head of beef cattle with all basic feed and forage produced on the place. A total of 33 contract items are involved in establishing the complete plan. The major contract items provide for converting 204 acres of thin gravelly soil to permanent pasture in 1958, 1959 and 1962; developing a well in 1958 and a spring in 1961 for livestock water; installing stripcropping on the remaining cropland for erosion control in 1959 and 1960; carrying out an improved crop rotation; placing approximately one-half of the remaining 290 acres of cropland into rotation hay starting in 1958; and adjusting stocking rates to establish and maintain good to excellent range conditions. Great Plains cost-sharing amounting to approximately \$2,600 will be used for the first three items. ACP assistance will be used for initiating the hay rotation.

#### Union County, New Mexico

The plan of operations in a Great Plains Conservation Program contract covering a 10,500 acre ranch in Northeastern New Mexico provides for seeding grass on 880 acres, building 30 erosion control dams, planting three acres of trees, range pitting on 2,740 acres, constructing 360 rods of fence, deferring grazing on 1,450 acres, and grazing 10,490 acres of

range forage properly. Federal cost-shares in the contract are estimated to defray about 65% of the total cost of installing this conservation plan.

#### Yuma County, Colorado

The Great Plains contract on a 3,780 acre place near Burlington, Colorado provides for \$7,144 in cost-sharing over the 4-year contract period. The plan of operations calls for seeding 117 acres of erodible cropland to permanent grass, of which 50 acres are in the Conservation Reserve program. A field of 127 acres of terraced cropland will be stripcropped for wind erosion protection. One livestock water well, 460 rods of fencing and 3 erosion control dams will aid in maintaining proper range use on 2,816 acres. Wildlife area improvement including 8 acres of tree and shrub planting and fencing is planned for 16 acres of the farm. The construction of 4,000 additional feet of terracing with grassed waterways are also provided for in the contract. Stubble-mulch farming will provide additional protection for the crop land.

#### 1957-58 Wind Erosion

Wind action on cropland, range land and other land causes soil removal and deposition that subjects the land to further erosion hazards, materially lowers yields, or impairs the inherent productive capacity of the land. An estimated 3.7 million acres in the Great Plains were damaged by wind erosion during the November 1, 1957 to May 31, 1958 blow season according to local estimates from 275 counties. This damage was significantly less than has been reported for any season since 1951-2. Acreage damaged was only about one-third of the 10.3 million acres reported for the 1956-57 season. About 60 percent of the total land damage occurred in the five Southern Great Plains States, compared with 85 percent last year.

There was moderate to heavy precipitation over most of the critical wind erosion hazard area of the Great Plains and few severe windstorms during the season. Moisture was favorable during most of the season except in Montana and the Dakotas during the month of May. The most damaging windstorms occurred during April.

About 4.3 million acres of cropland, not otherwise protected from wind action, were protected by emergency tillage measures during the 1957-58 blow season. This was about one-fourth as much emergency tillage as was performed during the 1956-57 season.

Land Damaged This Season (As of June 1, 1958)

States	Cropland Acres	Range Land Acres	Other Land Acres	Total Land Acres
<u>Southern Great Plains</u>				
Colorado	461,000	40,000	5,000	506,000
Kansas	121,000	1,000	1,000	123,000
New Mexico	223,000	41,000	2,000	266,000
Oklahoma	90,000	2,000	2,000	94,000
Texas	1,032,000	102,000	50,000	1,184,000
Subtotal	1,927,000	186,000	60,000	2,173,000
<u>Northern Great Plains</u>				
Montana	884,000	11,000	0	895,000
Nebraska	16,000	5,000	0	21,000
North Dakota	592,000	8,000	0	600,000
South Dakota	7,000	0	0	7,000
Wyoming	7,000	2,000	0	9,000
Subtotal	1,506,000	26,000	0	1,532,000
Great Plains Total	3,433,000	212,000	60,000	3,705,000

Comparative charts of the cumulative damage by months for the past four blow seasons (Chart I) and of the annual damage since the 1934-35 blow season (Chart II) follow:





CHART I

Estimates of Cumulative Acres Damaged - Great Plains

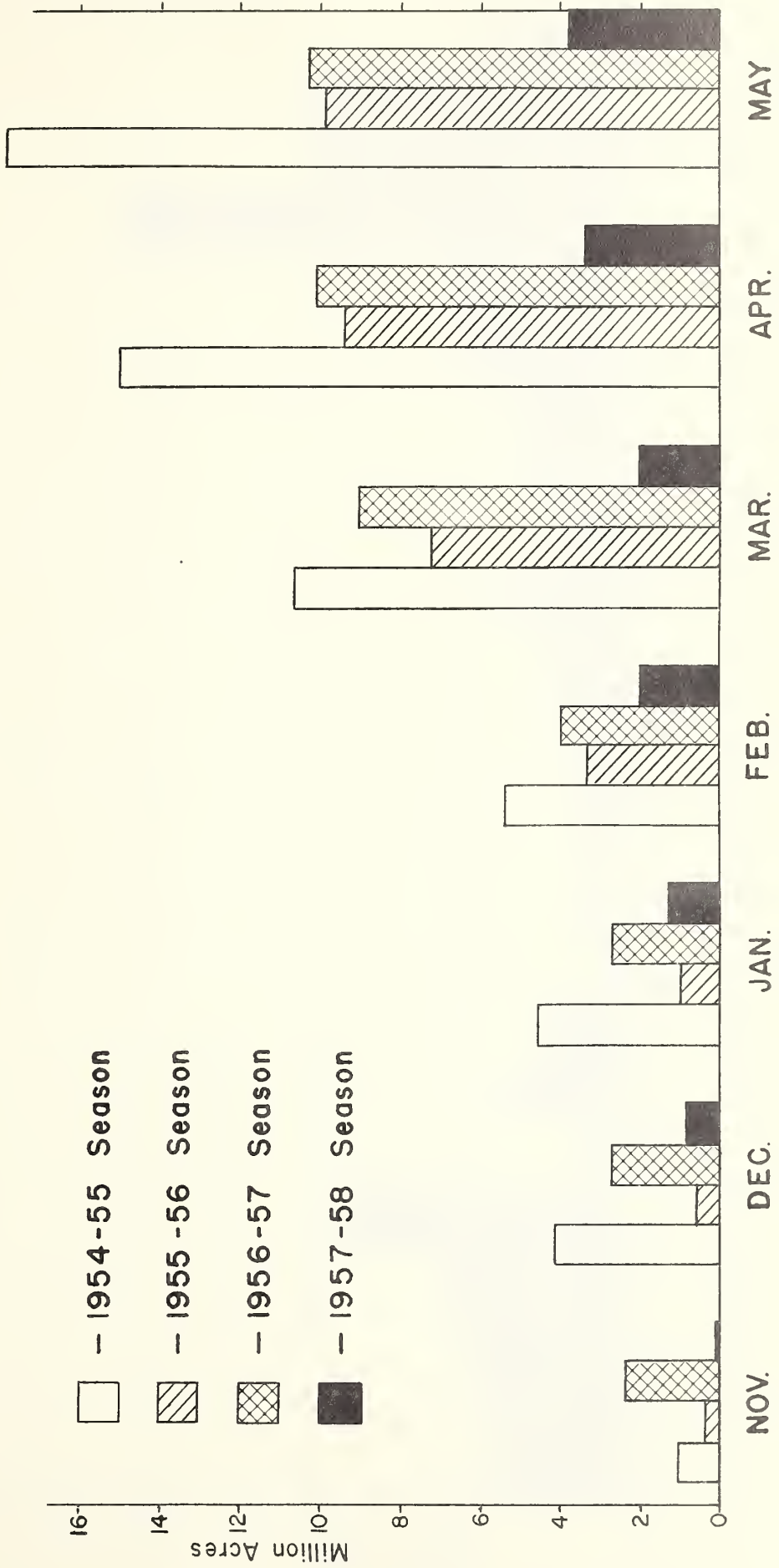
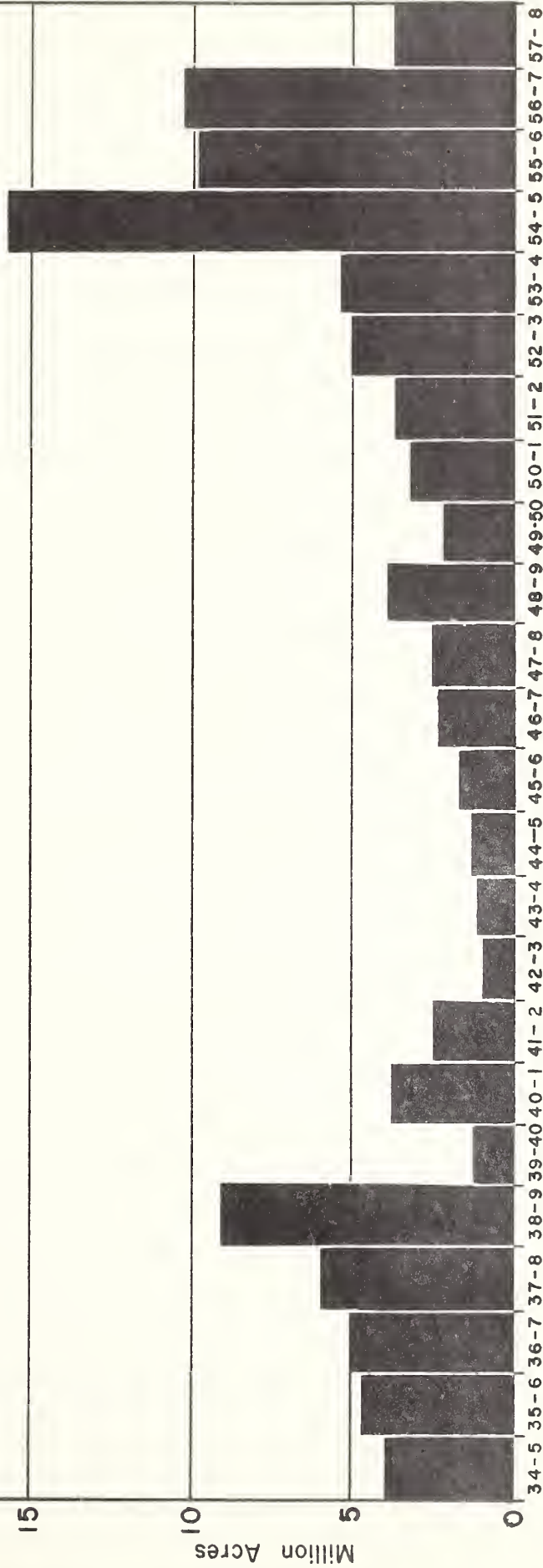






CHART II

ACRES OF LAND DAMAGED ANNUALLY IN GREAT PLAINS  
Seasons 1934-35 to 1957-58, inclusive



Note: Data for period 1943-44 through 1952-53 were obtained from reports of the Great Plains Council.  
All other data were obtained from SCS reports.



STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS AND OTHER FUNDS

(Includes only those amounts, which by November 30, 1958, were actually received or programmed for 1959 or 1960. Since work for other agencies is performed on a service basis, at the request of those agencies and for their benefit, it is not practicable to estimate in advance the amounts to be received in most cases.)

Item	Obligations, 1958	Estimated Obligations, 1959	Estimated Obligations, 1960
Allotment from:			
Conservation Reserve, Soil Bank Program,			
Agriculture - For counsel and guidance			
to farmers and ranchers in converting			
acreage from crop production to grass			
and trees, and technical services in			
selection and establishment of soil and			
water conservation practices .....	\$776,967:	\$703,500:	\$820,000
Allocations and Working Funds (Advances			
from other agencies):			
International Cooperation Administra-			
tion - For training and technical			
assistance activity .....	33,875:	39,000:	- -
Atomic Energy Commission - For con-			
struction of laboratory facilities ..	55,688:	15,067:	- -
Total, Advances from other agencies ...	89,563:	54,067:	- -
Trust Funds:			
Technical Services and Other Assistance,			
Agricultural Conservation Program			
Service - For technical and other			
assistance to farmers and ranchers in			
participating counties pursuant to			
agreements with individual Agricultural			
Stabilization and Conservation State			
and County Committees .....	7,984,512:	3,425,000:	- -
Miscellaneous Contributed Funds, Depart-			
ment of Agriculture:			
For flood control works of improvement:			
on the Los Angeles River watershed .	38,295:	17,143:	- -
For cooperation with Soil Conserva-			
tion Commission, California, in			
developing cultural methods and			
experimental seed supplies at			
Pleasanton Nursery .....	31,125:	35,135:	35,000
For cooperation with State and local			
organizations in the survey of water-			
shed projects and the installation			
of watershed works of improvement ..	174,097:	197,722:	215,000
Total, Miscellaneous Contributed			
Funds .....	243,517:	250,000:	250,000
Total, Trust Funds .....	8,228,029:	3,675,000:	250,000

(Continued on next page)



Item	Obligations,	Estimated Obligations, 1959	Estimated Obligations, 1960
Obligations under Reimbursements from Governmental and Other Sources:			
Conservation operations:			
For sale of cartographic reproductions, cooperative projects with State agencies, detail of personnel to other Federal agencies, sale of equipment and accessories for which the proceeds are used to purchase similar items, etc. ....	2,617,542:	1,668,800:	1,300,000
For technical and other assistance to farmers and ranchers in partici- pating counties pursuant to agree- ments with individual Agricultural Stabilization and Conservation State and County Committees .....	- -	4,475,000:	7,900,000
Watershed protection .....	205,257:	391,000:	410,000
Flood prevention .....	36,501:	40,000:	40,000
Water conservation and utilization projects .....	1,231:	200:	- -
Great Plains conservation program ....	453:	- -	- -
Total, Reimbursable obligations .....	2,860,984:	6,575,000:	9,650,000
TOTAL, OBLIGATIONS UNDER ALLOTMENTS AND OTHER FUNDS .....	11,955,543:	11,007,567:	10,720,000

## PASSENGER MOTOR VEHICLES

### Conservation Operations

The estimates for 1960 provide for the scheduled replacement of 131 passenger motor vehicles during the fiscal year. The service authorizes the use of passenger motor vehicles by area conservationists, technical specialists, survey supervisors and State office personnel for travel where public transportation is inadequate, non-existent or not feasible. As a rule, passenger vehicles are used for travel to several locations in a single day. Frequent stops are made to examine field work or to discuss the soil conservation program with resident technicians at isolated points in the State. It is impossible to use other means of transportation in lieu of these vehicles because of the nature of this travel, the frequency of the stops and the fact that common carrier facilities do not serve the rural areas.

The 131 passenger motor vehicles are estimated to cost \$156,200 after applying the trade-in value of the old vehicles.

### Watershed Protection

The estimates for 1960 provide for the replacement of 3 passenger motor vehicles during the year. These vehicles are required by technicians and survey parties for investigation and surveys of proposed small watershed projects and for planning and supervising the installation of works of improvement in authorized watershed project areas. Transportation of two or more technicians or aids is frequently required by the nature of the work. Most watershed project areas are not served by common carrier and the use of pickup trucks is not feasible.

It is estimated that the 3 passenger vehicles will cost \$4,800 considering trade-in values.

### Flood Prevention

Eight passenger motor vehicles are scheduled to be replaced during the fiscal year 1960. These vehicles will replace the same number now in use. They are used by technicians and aids engaged in the installation of works of improvement in the eleven authorized projects.

These employees usually have to travel considerable distances in rural areas where public transportation is inadequate or non-existent and under circumstances where the use of pickup trucks is not feasible.

The eight passenger vehicles are estimated to cost \$9,600 after applying the trade-in value of the old vehicles.

## General

The Soil Conservation Service operated 946 passenger motor vehicles on June 30, 1958. None of these are used in Washington, D. C., but are distributed among the 51 State and Territorial offices, approximately 300 area offices and various technical specialists located at field headquarters. Resident technician servicing the farmers and ranchers in soil conservation districts travel in pickup trucks to field areas to conduct surveys and prepare conservation plans, perform engineering work or to lay out conservation practices.

All of the vehicles proposed to be replaced will be well within the standards of 60,000 miles or 6 years of age established by the General Services Administration. Many of these vehicles are so old and have reached such high mileage that they are no longer economical to operate. Many of them are frequently out of service for repairs, some of which entail long periods of time due to general deterioration from age and use.

The policy of the Soil Conservation Service is to replace one-seventh of the inventory each year. This permits replacement of vehicles that have reached seven years of age and have been driven about 70,000 miles. This policy is based on past experience. It has not always been possible to maintain this schedule of replacements.

As of June 30, 1958, the Service had 66 vehicles seven years or older and about 140 with 70,000 miles or more. The Service will replace 115 vehicles during the fiscal year 1959. By June 30, 1959, it is estimated that approximately 130 will have been driven more than 70,000 miles.

The 142 replacements scheduled for 1960 will enable replacement of all passenger vehicles in the fleet over 7 years of age or 70,000 miles. Actual replacement will, however, be based upon economy of operation, and expected use factors as well as the age and mileage. Past efforts to bring the fleet back on a sound replacement schedule have been effective. On June 30, 1958, only 7% of the fleet was more than 7 years old compared with 9.7% a year earlier. Similarly on June 30, 1958, about 15% of the fleet registered mileage over 70,000 miles as compared with 24% a year earlier. Replacements proposed for the current fiscal year will improve this relationship. The net value of the fleet of passenger motor vehicles June 30, 1958, was \$742,058.

Passenger cars are not assigned to one individual exclusively at locations where more than one employee has need for the equipment. This allows several employees to use a single car. Also, all employees are directed by Service policy to coordinate travel to the same locality so as to utilize transportation equipment efficiently. Thus two or more employees are transported in the same vehicle whenever it is feasible.

Tabulations showing total mileage and age of passenger motor vehicles operated by the Soil Conservation Service on June 30, 1958, follows:



<u>Mileage</u>	<u>Number of Passenger Vehicles</u>	<u>Percentage</u>
Over 100,000	20	2.1
30,000 - 100,000	56	5.9
60,000 - 80,000	129	13.6
50,000 - 60,000	91	9.6
40,000 - 50,000	83	8.8
30,000 - 40,000	98	10.4
20,000 - 30,000	144	15.2
10,000 - 20,000	111	11.7
1,000 - 10,000	205	21.7
0 - 1,000	9	1.0
	<u>946</u>	<u>100.0</u>

<u>Year Model</u>	<u>Number of Passenger Vehicles</u>	<u>Percentage</u>
Prior to 1949	3	0.3
1949	6	0.6
1950	9	1.0
1951	43	5.1
1952	35	3.7
1953	128	13.5
1954	40	4.2
1955	102	10.8
1956	145	15.3
1957	227	24.0
1958	<u>203</u>	<u>21.5</u>
	<u>946</u>	<u>100.0</u>



## AGRICULTURAL CONSERVATION PROGRAM SERVICE

### Purpose Statement

The Agricultural Conservation Program Service has the primary responsibility for the administration of the Agricultural Conservation Program authorized by the provisions of section 7 to 16(a) inclusive, and section 17 of the Soil Conservation and Domestic Allotment Act, as amended; the Emergency Conservation Measures authorized by the Third Supplemental Appropriation Act of 1957, and the Supplemental Appropriation Acts of 1958 and 1959; and conservation practice phases of the Conservation Reserve Program authorized by the Soil Bank Act (7 U.S.C. 1801-1837). It determines the conditions under which public sharing of farmers' conservation costs is needed and justified to protect the Nation's interest in preserving agricultural land and water resources. It also determines the extent to which such cost-sharing should be offered, how, when and where it will be accomplished and whether the results are in accord with sound public policy.

The Service carries on work in connection with the following programs:

Agricultural Conservation Program: To achieve the objectives of this program which include (1) restoring and improving soil fertility, (2) reducing erosion caused by wind and water, and (3) conserving water on land, the Agricultural Conservation Program Service offers cost-sharing assistance to individual farmers and ranchers in all of the 49 States, Hawaii, Puerto Rico and the Virgin Islands for carrying out approved soil-building and soil- and water-conserving practices on their farms. This assistance represents only a part of the cost of performing the practice. The farmer bears the balance of the cost and in addition supplies the labor necessary to carry out the practice. Allocations are made to States based upon conservation needs.

Cost-sharing assistance is offered only for the practices considered necessary to meet the most urgently needed conservation problems of the farm, which would not otherwise be carried out to the extent needed. To be eligible for cost-sharing the farmer must make application therefor before beginning the practice.

Conservation measures for which cost-sharing assistance is offered, include practices primarily for:

1. Establishment of permanent protective cover.
2. Improvement and protection of established vegetative cover.
3. Conservation and disposal of water.
4. Establishment of temporary vegetative cover.
5. Temporary protection of soil from wind and water erosion.

Cost-sharing assistance is available in the form of:

1. Partial payment of the purchase price of materials and services needed by the farmer for carrying out approved practices, or
2. Partial reimbursement to farmers who have carried out approved practices at their own expense.



Materials and services are obtained through local private sources where practicable. Rates of assistance vary by practices and by States and areas so as to make the most effective use of available funds.

Emergency Conservation Measures: The objective of this program is to restore to normal agricultural use farmlands which have been damaged by wind erosion, hurricanes, floods, or other natural disasters. To this end, farmers are offered up to 80% of the cost of carrying out approved practices. Assistance is given only when new conservation problems are created which:

1. If not treated will impair or endanger the land.
2. Materially affect the productive capacity of the land.
3. Represent damage which is unusual in character and, except for wind erosion, is not the type which would recur frequently in the same area.
4. Will be so costly to rehabilitate that Federal assistance is or will be required to return the land to productive agricultural use.

Conservation Reserve Program: The ACPS is responsible for formulating the conservation practices and the program policies necessary to achieve the conservation objectives of this program. This Service also is responsible for review and appraisal of the conservation phases of the program and assists the Commodity Stabilization Service in developing the operating procedures needed in the administration of the program. Funds for cost-sharing assistance are shown under the Soil Bank programs.

Great Plains Conservation Program: The ACPS provides leadership in the development of a National list of soil and water conservation practices for this program, for cost-sharing purposes, and assists in developing and reviewing policies and general operating procedures for the program. The list of conservation practices and changes therein necessary to achieve the objectives of this program in each State of the area are developed locally by Soil Conservation Service and Agricultural Stabilization and Conservation Committees and are recommended by SCS and ACPS to the Secretary for approval. Funds for cost-sharing assistance are shown under the Soil Conservation Service.

These foregoing responsibilities are discharged by a small staff organization working through and with other agencies, Federal, State, and local, concerned with conservation, particularly those in the fields of research, education, technical servicing and credit.

As of November 30, 1958, the ACPS had 63 full-time employees and 1 part-time employee, all of whom are located in Washington, D. C.

	Estimated Available, 1959	Budget Estimate, 1960
Agricultural Conservation Program	\$235,000,000	\$241,500,000
Emergency Conservation Measures (Reappropriated)	16,940,523	a/ --

a/ Balance in appropriation at end of F.Y. 1959 is estimated at \$10 million. Obligations for F.Y. 1960 are estimated at \$5 million.

(a) Agricultural Conservation Program

	<u>On Direct Appropriation Basis</u>	<u>On Program Authorization Basis</u>
Appropriation Act, 1959, and base for 1960 .....	\$235,000,000	\$250,000,000
Budget Estimate, 1960 .....	<u>211,500,000</u>	<u>100,000,000</u>
Change .....	<u>+6,500,000</u>	<u>-150,000,000</u>

SUMMARY OF INCREASES, 1960  
(On basis of direct appropriation)

Decrease in cost-sharing assistance to farmers .....	-1,540,000
Increase in administrative expense for Agricultural Stabili- zation and Conservation county committees .....	+1,540,000
Increase to carry out the 1959 program in the amount authorized .....	+6,500,000

The Agricultural Conservation Program is operated on a program or crop year basis and cost-sharing assistance is given to farmers upon completion of approved measures. Funds for cash payments earned under the 1958 Agricultural Conservation Program, which closed on December 31, 1958 were made available in the Department of Agriculture and Farm Credit Administration Appropriation Act, 1959. In that Act, the Congress also authorized the formulation and administration of a \$250 million program for 1959 for which this estimate is submitted.

PROJECT STATEMENT  
(On basis of program authorizations)

Project	: Appropria- : tion 1958 : (1957 Prog.) : (actual)	: Appropria- : tion 1959 : (1958 Prog.) : (estimate)	: Increase : or : Decrease	: Appropria- : tion 1960 : (1959 Prog.) : (estimate)
1. Cost-sharing assistance to farmers .....	:	:	(1):	:
Other program expenses ..	\$215,803,750:	\$223,710,605:	-1,540,000:	\$222,170,605
Total program expenses:	1,308,541:	1,440,445:	-	1,440,445
2. Operating expenses:	217,112,291:	225,151,050:	-1,540,000:	223,611,050
County Committee expenses:	:	:	(2):	:
ASC County committees :	19,564,385:	19,755,131:	+1,540,000:	21,295,131
Forest Service :	110,546:	113,619:	-	113,619
Total county committee: expenses .....	:	:	:	:
National and State	19,674,931:	19,868,750:	+1,540,000:	21,408,750
Office expenses:	:	:	:	:
Agricultural Conserva-:	:	:	:	:
tion Program Service :	510,408:	581,625:	-	581,625

Project	: Appropria- : tion 1958 : (1957 Prog.) : (actual)	: Appropria- : tion 1959 : (1958 Prog.) : (estimate)	: Increase : or : Decrease	: Appropria- : tion 1960 : (1959 Prog.) : (estimate)
National and State	:	:	:	:
Offices (CSS) .....	4,503,703:	4,825,084:	-	4,825,084
Forest Service .....	15,975:	17,491:	-	17,491
Total National & State:	:	:	:	:
office expenses .....	5,030,086:	5,424,200:	-	5,424,200
Total operating expenses:	24,705,017:	25,292,950:	+1,540,000:	26,832,950
Total pay act costs	:	:	:	:
(P.L. 85-462) .....	[204,863]:	[475,725]:	-	[475,725]
Total obligations .....	241,817,308:	250,444,000:	-	250,444,000
Adjustments:	:	:	:	:
Difference in amount	:	:	:	:
used for purchase of	:	:	:	:
conservation materials	:	:	:	:
and services from prior	:	:	:	:
fiscal year appropria-	:	:	:	:
tion for current pro-	:	:	:	:
gram and amount used for:	:	:	:	:
such purchases from cur-	:	:	:	:
rent fiscal year .....	-1,256,548:	-	-28,000,000:	-28,000,000
Reimbursements from sale:	:	:	:	:
of aerial photographs ..	-444,000:	-444,000:	-	-444,000
Received by loan from	:	:	:	:
CCC .....	-37,700,000:	-37,500,000:	+28,000,000:	- 9,500,000
Repayment of loan from	:	:	:	:
CCC .....	+1,000,000:	+22,500,000:	+6,500,000:	+29,000,000
Available for repayment	:	:	:	:
of loan from CCC .....	+8,583,240:	-	-	-
	:	:	(3):	:
Appropriation or estimate	212,000,000:	235,000,000:	+6,500,000:	241,500,000

#### INCREASES AND DECREASES

(1) A decrease of \$1,540,000 in cost-sharing assistance to farmers in carrying out conservation practices is proposed, to offset the proposed increase in administrative expenses explained below.

The 1959 Agricultural Conservation Program was announced July 10, 1958 and allocations to States for cost-sharing assistance plus the reserve for small-payment increases were approved at that time. Allocations and reserve for size of payment for the 1959 Agricultural Conservation Program are \$2,133,145 in excess of the amount shown as being available for such purposes under Project 1. Of this excess, \$605,625 is due to increases arising from the Federal Employees Pay Act of 1958 and recently revised postal rates, offset by an estimated savings of \$12,480 in administrative expenses, and can be provided by reducing the reserve for small-payment increases without revising the allocations to individual States. The remaining \$1,540,000, needed to increase the salaries of Agricultural Stabilization and Conservation



county committee employees, effective July 1, 1959, was not anticipated at the time the state allocations were approved. It is felt that the reserve for small-payment increases cannot be reduced further. However, past experience indicates that underearnings of at least \$1,540,000 will develop on the 1959 program that can be used for this purpose, which will avoid reduction of the state allocations.

(2) An increase of \$1,540,000 is required to increase the salaries of the Agricultural Stabilization and Conservation county committee employees by ten percent, effective July 1, 1959, to bring them more nearly in line with present salary scales for Federal employees performing comparable work in the same areas. The amount of \$1,540,000 represents the proportionate share for this purpose to be paid from the Agricultural Conservation Program. The proposal to increase the salaries of these employees is discussed in more detail in the justifications for "Acreage Allotments and Marketing Quotas."

(3) An increase of \$6,500,000 on a direct appropriation basis. The appropriation request for fiscal year 1959 was reduced from \$250,000,000 to \$235,000,000, or a reduction of \$15,000,000 due to the availability of underearnings of this amount on the 1956 program. An increase of \$15,000,000 would normally be required in the 1960 appropriation in order to carry out a 1959 Agricultural Conservation Program of \$250,000,000 as authorized by the Congress. However, due to underearnings of \$8,500,000 on the 1957 program, an increase of only \$6,500,000 is required. The underearnings will be used to repay part of the 1959 loan from the Commodity Credit Corporation, thereby reducing the amount to be repaid from the 1960 appropriation.

#### Advance Authorization for 1960 Agricultural Conservation Program

An advance authorization of \$100 million is proposed for cost-sharing payments to farmers who carry out approved soil and water conservation measures on their farms during the 1960 program year. This reduction is made in view of the continued high level of Federal expenditures and the necessity for some reductions to be made in such outlays, especially in future years. The proposed authorization for the 1960 program is a part of the efforts being made in this direction. It is contemplated that the Department's total conservation effort will continue to be maintained at a substantial level. Under the 1956-58 Conservation Reserve Programs, farmers have contracted to retire about 10 million acres of land and the goal for 1959 is to increase this total to about 22½ million acres. Also, under the Great Plains Conservation Program farmers and ranchers are entering into contracts which will result in the withdrawal of additional land from crop production. In addition the administration and protection of the national forests involving over 160 million acres of forested and associated lands in the United States, plus 20 million in Alaska, together with associated cooperative work with State Forestry Departments with respect to State and private forest lands, constitutes a major conservation activity.

In addition, research to solve problems associated with soil and water conservation on both agricultural and forest lands is continuing at the present level. The work of the Soil Conservation Service in providing technical assistance to farmers and ranchers through the soil conservation districts, together with watershed protection and flood prevention activities, is being continued at a substantial level.

It is proposed to retain those conservation practices under the 1960 Agricultural Conservation Program, which are determined by county and State ACP Development Groups to be necessary to provide a practical program based upon their experiences. The State ACP Development Group consists of The State ASC Committee, including the State Director of Extension; the State Conservationist of the Soil Conservation Service; and the Forest Service official having jurisdiction of farm forestry in the State. The President of the Land Grant College and the State Director of the Farmers Home Administration are invited to designate representatives to counsel with this group in the formulation of the State program. Also, representatives of the State Soil Conservation Committee (Board or Commission); the State Agricultural Extension Service; and other State and Federal Agricultural agencies are invited to participate in the deliberations on the State programs. The county ACP Development Group consists of comparable agency representatives at the county level.

The proposed reduction for 1960 will not necessitate the withdrawing of cost-sharing from any particular kind of conservation work. The overall level of assistance under the ACP will merely be reduced. State ACP groups may develop a program within the funds available, which contains those practices believed by the State group to best meet State needs for conservation.

In developing the 1960 national program it is not proposed to lower the present national maximum rates of cost-sharing assistance, but to leave to the determination of the several States the decision as to cost-sharing rates within the maximum provided by the national program.

The program funds for the 1960 program will be distributed among the States on the basis of the same conservation needs formula used in the past programs. This will result in approximately the same proportionate reduction in program level in each State.

#### CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

- 1 \* \* \* Provided, That not to exceed ~~/\$24,698,000/~~ \$26,832,950 of the total sum provided under this head shall be available during the current fiscal year for administrative expenses for carrying out such program, the cost of aerial photographs, however, not to be
- 2 charged to such limitation; but not more than ~~/ \$5,025,800/~~ \$5,424,200 shall be transferred to the appropriation account "Administrative expenses, section 392, Agricultural Adjustment Act of 1938": \* \* \*

- Provided further, That such amounts shall be available for administrative expenses in connection with the formulation and administration of the ~~/1959/~~ 1960 program of soil-building and soil- and water-conserving practices, under the Act of February 29, 1936,
- 3 as amended (amounting to ~~/\$250,000,000/~~ \$100,000,000, including administration, and no participant shall receive more than \$2,500, except where the participants from two or more farms or ranches join to carry out approved practices designed to conserve or improve the agricultural resources of the community): \* \* \*



- 4 [Provided further, That no change shall be made in such 1959 program which will have the effect, in any county, of restricting eligibility requirements or cost-sharing on practices included in either the 1957 or the 1958 programs, unless such change shall have been recommended by the county committee and approved by the State committee:]

Other than the usual changes in year dates applicable to the program covered by the appropriation and the period of availability thereof, the estimates include proposed changes in the language of the item as follows:

The first change increases the limitation on the total amount which may be used for administrative expenses from \$24,698,000 to \$26,832,950. The increase of \$2,134,950 is composed of (1) an increase of \$423,340 for increased pay costs of Federal employees pursuant to the Federal Employees Salary Increase Act of 1958 (Public Law 85-462), (2) an increase of \$184,090 for revised postal rates pursuant to Public Law 85-426, (3) an increase of \$1,540,000 to bring the salaries of Agricultural Stabilization and Conservation county committee employees more nearly in line with the present salary scales for Federal employees in local areas performing comparable work, and (4) a decrease of \$12,480 due to estimated savings in administrative expenses in fiscal year 1959. No increase in total appropriation is required and additional amounts needed for increased pay costs and revised postal rates are offset by a corresponding decrease in program funds.

The second change increases the amount which may be transferred to the appropriation account "Administrative expenses, section 392, Agricultural Adjustment Act of 1938" from \$5,025,800 to \$5,424,200. A net increase of \$398,400 is composed of \$396,409 for increased pay costs pursuant to the Federal Employees Salary Increase Act of 1958 (Public Law 85-462), an increase of \$12,094 for revised postal rates pursuant to Public Law 85-426, and a decrease of \$10,103 due to estimated savings in administrative expenses in 1959.

The third change reflects a proposed authorization of \$100 million for the 1960 program. An explanation concerning the 1960 program follows the project statement in these justifications.

The fourth change would delete the proviso inserted in the 1959 Act by the Congress which places conditions upon effecting certain program changes at the State and National levels. For several years it has been the policy to provide for an annual review of this program with all levels participating. At the State and county level, the review is made by State and county Agricultural Stabilization and Conservation committees and representatives of the Forest Service, the Soil Conservation Service, and other agricultural agencies, whose recommendations are considered by the various agencies of the Department in developing the National program. It is not believed that it was the intent of the Congress to eliminate this annual review. The county committees are as anxious as anyone to make needed program changes. The legislative restriction, however, tends to complicate the system of administration which has been in effect over a period of years and may preclude the making of changes which, on the basis of experience and research, are determined necessary for a more effective program.





### Background

Conservation of agricultural soil and water resources is recognized as essential to the present and future well-being of the Nation. Not only is it essential to assure a continued supply of food, fiber, and shelter for an increasing population, but also to supply the greater part of the raw materials that go into the expanding economy of the Nation. Farms and forests supply annually over 70% of all raw materials used in the economy of the country. Transporting, processing, financing, and handling these raw materials to make them useful and supply them where they are needed make up a large part of all the business and commerce that furnishes the livelihood for the Nation's nonfarm population. Because of their interest in food, fiber, and shelter and a continued healthy economy, nonfarm people have perhaps an even greater interest in conservation of soil and water resources than farmers themselves.

Farm practices that conserve agricultural soil and water resources are costly. They require an initial outlay of capital to install and many of them result in a reduction in farm income and an increase in the amount of expenditures for farm operations. In the past few years the economic phase of conservation work has been receiving increased attention. Several recent studies have revealed some of the reasons why farmers are often reluctant to adopt conservation systems of farming, even though it is recognized that such a system will eventually result in increased farm income. These studies show that in addition to the substantial initial investment, there is usually a loss of immediate income when a conservation system of farming is adopted. They also show that returns which can be expected from some types of needed conservation measures (for example, terrace systems, erosion control structures and certain forestry improvement measures) will not equal their cost in the foreseeable future, although they may be necessary to prevent irreparable loss of soil resources. It is shown that there are greater risks in some types of needed work (such as contour farming or the establishment of soil saving cover in some areas) than farmers and lenders are generally willing to assume.

It is with this background of cost and returns from conservation and the public's dependence upon the conservation of soil and water resources that Federal cost-sharing of conservation practices on individual farms is offered. Research and experimental work have developed and are developing means by which soil and water resources can be conserved. Educational work is teaching the value of and need for conservation effort. Technical services help determine the conservation measures that are needed and furnish engineering and other professional assistance to correctly install them. Federal cost-sharing by the Agricultural Conservation Program helps overcome the economic barriers to carrying out conservation measures. The basic purpose of the Agricultural Conservation Program is to afford a means by which all the people may bear a part of the costs of those measures that would not otherwise be carried out at the rate needed to meet the public interest. It assists farmers to protect the public's interest in the Nation's soil and water resources by sharing with individual farmers and ranchers the cost of carrying



out soil-building and soil-and-water-conserving practices more rapidly and to a fuller extent than would be practicable through usual farm management practices. The program, which is applicable to all farmland except some-federally-administered noncropland, helps insure continued abundant production for all of the people of the country.

#### Program Development

Development of the Agricultural Conservation Program begins at the local or county level. The Agricultural Stabilization and Conservation county committee, with the assistance of the County Extension Agent and representatives of the Soil Conservation Service, Forest Service, and other local agencies interested in conservation, make recommendations to the Agricultural Stabilization and Conservation State committee. These are summarized by the State committee and used as the basis to formulate joint recommendations of the agencies interested in conservation to the Agricultural Conservation Program Service in Washington.

From these recommendations, the Agricultural Conservation Program Service, the Commodity Stabilization Service, Soil Conservation Service, and Forest Service develop and recommend to the Secretary a national program. State and county committees then develop their programs within the structure of the national program authorized by the Congress and approved by the Secretary.

#### Program Administration

The Agricultural Conservation Program is administered locally by Agricultural Stabilization and Conservation county committees which are composed of resident farmers elected by farmers they serve. County Committees are supervised by Agricultural Stabilization and Conservation State committees composed of resident farmers appointed by the Secretary of Agriculture. The local County Agent is ex officio a member of the county committee and the State Director of Extension holds a like position on the State committee.

State, county and community committeemen are assigned the responsibility for the field administration of the program and work directly with farmers in utilizing program assistance in an effort to get the greatest volume of conservation performed on the land by the farmers themselves. The responsibility for technical determinations in the field regarding designated permanent type practices is assigned to the Soil Conservation Service, except for forestry practices, for which responsibility is assigned to the Forest Service.

#### The Program for 1958

The Department carried out the 1958 Agricultural Conservation Program consistent with the authorization contained in the Department of Agriculture and Farm Credit Administration Appropriation Act, 1958. The Department continued the policy of directing program emphasis toward but not limiting assistance to, enduring practices which are essential in the



public interest and which farmers or ranchers would not carry out to the desired extent with their own resources, and to practices needed to meet the conservation problems on land being shifted out of production.

States were authorized to operate the 1958 Program concurrently with the 1957 Program in the fall of 1957. Under concurrent programs, State programs for two different years are in operation during the overlapping period of time authorized by the Congress and during which practices performed are eligible for cost-sharing under either program but not both programs.

#### The Program for 1959

The 1959 program is the same as the 1958 National Agricultural Conservation Program, except for changes made for clarification of program provisions or to permit increased operating efficiency. Consistent with the provision in the Department of Agriculture and Farm Credit Administration Appropriation Act, 1959, no change has been made in the 1959 National program which will have the effect of restricting eligibility requirements or cost-sharing on practices included in either the 1957 or 1958 program.

Authority for local development and adaptation of the program continues. There is also encouragement for modifications of regular practices to meet local problems. In addition, there is continued the provision for the development of new practices to meet new or unusual conservation problems.

The maximum Federal cost-share limitation remains at \$2,500, the same as for 1958.

States have been instructed to obtain from counties such periodic reports as are necessary to keep currently advised of the progress of the program in each county and to adjust funds among counties when necessary in order to get a maximum of conservation accomplishment, and to operate concurrent programs to provide the maximum flexibility essential to the best utilization of available funds.

The continuation of substantially the same program in 1959 as in 1958 enabled States and counties to progress from one program year to the next without interruption. It also increased program understanding among county office personnel and farmers and helped get the 1959 program into operation with a minimum of delay.

Funds available for program assistance, after estimated costs of administration are deducted from the maximum authorization, are distributed among States in accordance with their conservation needs, except for the minimum allotment provision contained in Section 15 of the Soil Conservation and Domestic Allotment Act, as amended. Funds for the Naval Stores Conservation Program, cost of aerial photography, program printing, and transfers to the Treasury Department are subtracted from the amount available for program assistance before the conservation needs formula is applied. The amount for Naval Stores has been determined in the same manner since 1948 and is based on the need for assistance under the Naval Stores Conservation Program as related to the total funds available for cost-sharing assistance to farmers.

Program Data

Participation under the 1957 Agricultural Conservation Program

Item	Unit	Total a/	Participating a/	Percentage of participation
Farms .....	Number	5,264,007	1,161,349	22
Farm land .....	1,000 acres	1,223,742	419,011	34
Cropland .....	1,000 acres	476,991	171,042	36
Noncrop pasture and range .....	1,000 acres	552,760	184,640	33

a/ Includes the United States, Hawaii, Puerto Rico, the Virgin Islands, and data relative to the Supplementary (Emergency) Agricultural Conservation Program. Excludes the Naval Stores Conservation Program.

Extent of Selected Conservation Measures Performed Under the 1957 Agricultural Conservation Program and Accomplishments Under the Agricultural Conservation Programs - 1936-1957. Includes Supplementary (Emergency) Agricultural Conservation Programs.

Practice	Unit	Extent under 1957 program 1/	Total accomplishments 1936-1957 1/
Dams and reservoirs 2/ .....	1,000 struc.	70	1,518
Standard terraces .....	1,000 acres	857	23,037
Diversion and spreader terraces ..	Mile	5,378	112,621
Permanent sod waterways .....	1,000 acres	45	545
Stripcropping .....	1,000 acres	732	109,212
Leveling to conserve irrigation water and control erosion .....	1,000 acres	324	6,155
Drainage .....	1,000 acres	1,071	35,254
Tree planting .....	1,000 acres	283	1,949
Timber stand improvement .....	1,000 acres	228	1,308
Lining materials offered for conserving crops .....	1,000 tons	15,920	374,535
All vegetative cover .....	1,000 acres	13,955	739,082
Control of competitive shrubs on range or pasture .....	1,000 acres	1,239	36,883

1/ Includes completed measures only.

2/ Includes storage-type structures for erosion control, irrigation water, livestock water.



(b) Emergency Conservation Measures

Supplemental Appropriation Act, 1959, and base for 1960 .....	\$16,940,523
Budget Estimate, 1960 .....	- -
Decrease (due to elimination of non-recurring item) .....	<u>16,940,523</u>

PROJECT STATEMENT

Project	1958	1959 :(estimated):	1960 :(estimated):
Emergency cost-sharing assistance to farmers and ranchers .....	\$6,267,502:	\$6,940,523:	\$5,000,000
Unobligated balance carried forward .	- -	10,000,000:	5,000,000
Unobligated balance brought forward .	-3,208,025:	- -	-10,000,000
Unobligated balance reappropriated in 1959 .....	16,940,523:-	16,940,523:	- -
Appropriation or estimate .....	20,000,000:	- -	- -

Program for 1959 and 1960

These funds are available only for the rehabilitation of land damaged by natural disasters. The estimated obligations reflected above for 1959 and 1960 are therefore necessarily tentative, since actual use of the funds will be contingent upon needs which cannot be accurately forecast in advance.

Assistance to farmers is available only when natural disasters create new conservation problems which (1) if not treated, will impair or endanger the land, (2) materially affect the productive capacity of the land, (3) represent damage which is unusual in character and, except for wind erosion, is not the type which would recur frequently in the same area, and (4) will be so costly to rehabilitate that Federal assistance is or will be required to return the land to productive agricultural use.

The Supplemental Appropriation Act, 1959, provided that the unexpended balance of appropriations previously made be available until expended.

CHANGE IN LANGUAGE

The estimates propose deletion of the following language:

[The unobligated balance of the amounts made available under this head in the Third Supplemental Appropriation Act, 1957, and in the Supplemental Appropriation Act, 1958, shall remain available until expended.]



The proposed change eliminates language providing funds to carry out a program of emergency cost-sharing assistance in areas where new conservation problems have been created as a result of natural disasters. The language is no longer needed inasmuch as the Supplemental Appropriation Act, 1959, makes the unobligated balance of funds appropriated in the Third Supplemental Appropriation Act, 1957, and in the Supplemental Appropriation Act, 1958, available until expended.

## STATUS OF PROGRAM

During the past several years natural disasters have occurred in various areas of the United States, including Alaska and Puerto Rico, which have resulted in such severe damage to farmlands as to warrant Federal assistance to farmers to return the land to productive agricultural use. The regular Agricultural Conservation Program was adjusted in emergency areas to provide as much conservation land treatment assistance as possible without unduly disrupting the accomplishments of the longer-range Agricultural Conservation Program and particularly where it was possible to divert funds which would not be otherwise utilized. However, because of the widespread conditions and intense degree of damage, cost-sharing was required in addition to that provided under the regular program for emergency measures to rehabilitate damaged farmlands. Since 1954 such assistance has been provided as follows:

1. In the Great Plains States where severe wind and drought conditions prevailed in 1954, 1955, and 1956.
2. In the Eastern Seaboard States and Puerto Rico where hurricanes caused floods and other substantial damage to farmlands.
3. In California, Nevada, and Oregon where torrential rains during the winter of 1955-1956 caused disastrous floods resulting in serious erosion and deposits of silt, sand, gravel, and other debris.
4. In Arkansas, Indiana, Kansas, Kentucky, Louisiana, Minnesota, Missouri, New Mexico, Oklahoma, Oregon, Texas and Alaska during 1957-1958 to help farmers protect or rehabilitate their farmlands. Damage to farmlands in these States was primarily from floods, but also from hurricane (two Louisiana parishes), freeze (one Oregon county), and wind erosion (an area in Alaska).

Public Law 85-58 provided \$4 million and Public Law 85-170 provided an additional \$20 million for emergency conservation measures.

Public Law 85-58, approved June 21, 1957, sets forth conditions under which emergency funds may be used to treat new conservation problems created by natural disasters. The problems must be such that: (1) if not treated, they will impair or endanger the land, (2) they materially affect the land's productive capacity, (3) they represent damage which is unusual in character and, except for wind erosion, is not the type which would recur frequently in the same area, and (4) they will be so costly to rehabilitate that Federal assistance is or will be required to return the land to productive agricultural use.

The Supplemental Appropriation Act, 1959, extended the availability of unobligated balances of these funds until expended.

Requests for assistance must originate with USDA County Disaster Committees. Such requests are considered by the USDA State Disaster Committee and that Committee's recommendations are forwarded to the Department.

Designation of eligible areas and allocation of emergency funds are made by the Secretary of Agriculture on the basis of the recommendations submitted through USDA State and County Disaster Committees and other available information, including findings and recommendations by the USDA (National) Disaster Committee.

Funds have been allocated through November 30, 1958, as follows:

State	1957 Program		1958 Program		1959 Program	
	Counties : :designated:	Alloca- :tion	Counties : :designated:	Alloca- :tion	Counties : :designated:	Alloca- :tion
	(1)	(2)	(3)	(4)	(5)	(6)
	Number	Dollars	Number	Dollars	Number	Dollars
Alaska .....	--	--	1	30,000		
Arkansas .....	19	36,948	19	408,000		
Indiana .....	12	65,154	12	528,000	12	192,000
Kansas .....	2	4,258	2	56,000		
Kentucky .....	31	58,103	31	500,000		
Louisiana ....	7	31,364	7	127,000		
Minnesota ....	9	13,117	9	102,000		
Missouri .....	21	367,030	21	925,000	22	1,029,000
New Mexico ..	--	--	1	48,000		
Oklahoma .....	21	233,744	21	250,000		
Oregon .....	2	390,781	2	150,000		
Texas .....	3	41,003	31	2,400,000	1	322,000
Total 1/..	127	1,241,502	2/ 157	5,524,000	3/ 35	1,543,000

1/ 184 different counties designated; total funds allocated \$8,058,502.

2/ Includes all counties designated under the 1957 program.

3/ Includes 7 counties in Indiana and 19 counties in Missouri and 1 county in Texas not included under 1958 program.

Emergency assistance has been authorized principally for the following types of work needed to solve new soil and water conservation problems created on farmlands as a result of natural disasters:

1. Rehabilitating farmlands which, as a result of flood waters, have suffered major damage such as deep gullying; heavy deposits of sand, gravel, or other debris; severe scouring by flood water; stream bank erosion; formation of pot holes; damage to dams, dikes, and ditches.
2. Rehabilitating existing drainage or irrigation systems damaged by flood waters by removing heavy deposits of silt or other material essential to restoring the system to an operating condition where farmlands served by the system could not otherwise be put to normal agricultural use.
3. Removing water from land where a serious drainage problem exists as a result of flood and involving restoration of the land to its normal agricultural use by installing new drains.
4. Restoring terraces, farm ponds and erosion control structures damaged by excessive rains or runoff.



STATEMENT OF OBLIGATIONS UNDER ALLOTMENTS AND OTHER FUNDS

(Includes only those amounts which, by November 30, 1958, were actually received or programmed for 1959 or 1960. Since work for other agencies is performed on a service basis, at the request of those agencies and for their benefit, it is not practicable to estimate in advance the amounts to be received in most cases.)

Item	Obligations, 1958	Estimated Obligations, 1959	Estimated Obligations, 1960
Allotments from:			
Soil Bank Programs, Agriculture:			
Conservation Reserve .....	\$8,547:	\$21,424:	\$14,200
Soil Conservation Service:			
Great Plains Conservation Program ..	6,831:	21,424:	21,424
Total, Allotments .....	15,378:	42,848:	35,624
Obligations Under Reimbursements From			
Governmental and Other Sources:			
Agricultural Conservation Program:			
For sale of aerial photographs ....	444,000:	444,000:	444,000
TOTAL OBLIGATIONS UNDER ALLOTMENTS			
AND OTHER FUNDS .....	459,378:	486,848:	479,624







